OLYMPUS

LINEAR PCM RECORDER

LS-5

Linear PCM Recorder

INSTRUCTIONS

EN

Thank you for purchasing an Olympus Digital Voice Recorder. Please read these instructions for information about using the product correctly and safely. Keep the instructions handy for future reference.
To ensure successful recordings, we recommend that you test the record function and volume before use.

Introduction

- The contents of this document may be changed in the future without advanced notice. Contact our Customer Support Center for the latest information relating to product names and model numbers.
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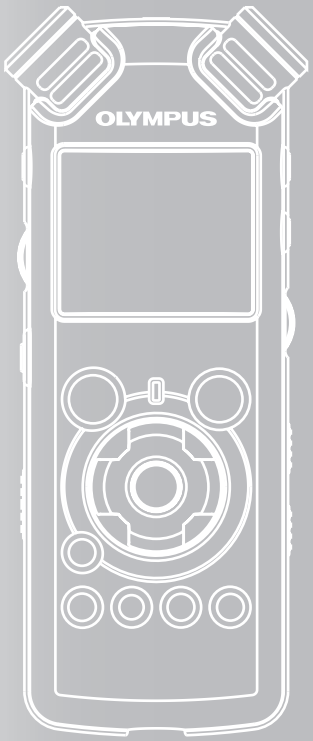

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Safe and Proper Usage

Before using your new recorder, read this manual carefully to ensure that you know how to operate it safely and correctly. Keep this manual in an easily accessible location for future reference.

- The warning symbols indicate important safety related information. To protect yourself and others from personal injury or damage to property, it is essential that you always read the warnings and information provided.

General Precautions

- Do not leave the recorder in hot, humid locations such as inside a closed automobile under direct sunlight or on the beach in the summer.
- Do not store the recorder in places exposed to excessive moisture or dust.
- Do not use organic solvents such as alcohol and lacquer thinner to clean the unit.
- Do not place the recorder on top of or near electric appliances such as TVs or refrigerators.
- Avoid recording or playing back near cellular phones or other wireless equipment, as they may cause interference and noise. If you experience noise, move to another place, or move the recorder further away from such equipment.
- Avoid sand or dirt. These can cause irreparable damage.
- Avoid strong vibrations or shocks.
- Do not disassemble, repair or modify the unit yourself.
- Do not operate the unit while operating a vehicle (such as a bicycle, motorcycle, or go-cart).
- Keep the unit out of the reach of children.
- When mounting the recorder to a tripod, turn the screws on the tripod side without turning the recorder itself.

<Warning regarding data loss>

Recorded content in memory may be destroyed or erased by operating mistakes, unit malfunction, or during repair work.

It is recommended to back up and save important content to other media such as a computer hard disk.

Any liability for passive damages or damage of any kind occurred due to data loss incurred by a defect of the product, repair performed by the third party other than Olympus or an Olympus authorized service station, or any other reasons is excluded from the Olympus's liability.

Batteries

⚠Warning

- Batteries should never be exposed to flame, heated, short-circuited or disassembled.
- Do not attempt to recharge alkaline, lithium or any other non-rechargeable batteries.
- Never use any battery with a torn or cracked outer cover.
- Keep batteries out of the reach of children.
- If you notice anything unusual when using this product such as abnormal noise, heat, smoke, or a burning odor:

  ① remove the batteries immediately while being careful not to burn yourself, and;

  ② call your dealer or local Olympus representative for service.

AC Adapter

⚠Warning

- Do not attempt to disassemble, repair or modify the AC adapter in any way.
- Keep foreign objects including water, metal, or flammable substances from getting inside the product.
- Do not moisten the AC adapter or touch it with a wet hand.
- Do not use the AC adapter in the vicinity of flammable gas (including gasoline, benzine and lacquer thinner).

In case

- ... the internal parts of the AC adapter are exposed because it has been dropped or otherwise damaged:
- ... the AC adapter is dropped in water, or if water, metal flammable substances or other foreign objects get inside it:
- ... you notice anything unusual when using the AC adapter such as abnormal noise, heat, smoke, or a burning odour:

  ① do not touch any of the exposed parts;

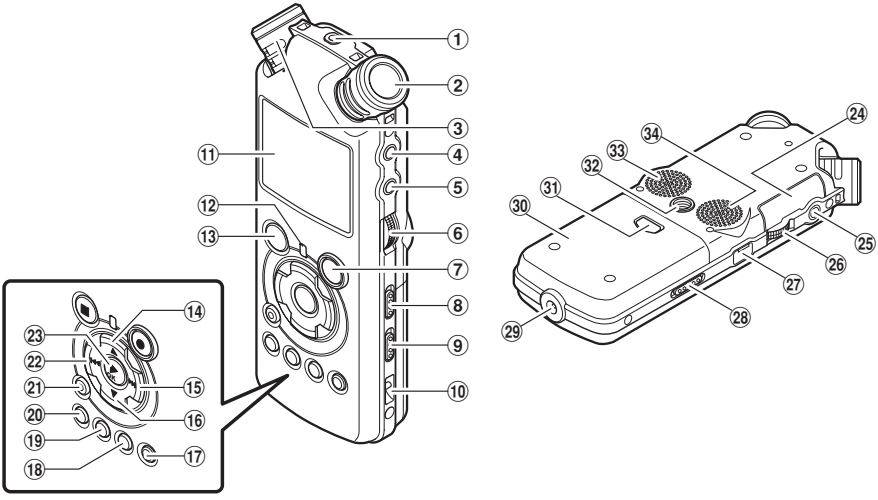
  ② immediately disconnect the power supply plug from the power outlet, and;

  ③ call your dealer or local Olympus representative for servicing. Continued use of the AC adapter under these circumstances could result in electric shock, fire or injury.

Main Features

- **Utilizes a high sensitivity, low noise stereo microphone capable of faithfully capturing the original sound.**
  Machined metal components are utilized in the housing for the built-in stereo microphone, resulting in a design built with special features in mind while also achieving a construction which is resistant to vibration. Furthermore, by turning the microphone itself 90° outwards you can produce recordings with a natural and expansive stereo feel to them.
- **Equipped with a high sound quality amplifier circuit.**
  Utilizes a low noise amplifier circuit, allowing you to produce high sound quality recordings with low noise.
- **Supports the linear PCM format, which is capable of recording sound quality equivalent to or surpassing CD-level.**
  Capable of realistically recording various different sound sources. High resolution recording at a high sampling frequency and bit count equivalent or superior to that of a music CD (Sampling frequency 44.1 kHz, Bit count 16bit) is possible (☞ P.41, P.43).
- **Supports a wide range of recording formats. Can handle the MP3 format (MPEG-1/ MPEG-2 Audio Layer 3), and the Windows Media Audio (WMA) format.**
  In supporting the MP3 and WMA formats, this device can save files in a highly compressed manner, thereby allowing for extended recording times (☞ P.41, P.43). In addition, when connected to an external device, the recorder can encode incoming analog audio signals without a PC (☞ P.30).
- **Supports high capacity recording media. Starting with its 2 GB built-in flash memory, can also record onto an SD Card (commercially available) (☞ P.17)..**
  Check the Olympus website regarding SD cards which are confirmed operation with this recorder (☞ P.81).
- **Equipped with a variety of features that support audio recording.**
  With this recorder you can customize a variety of recording functions such as the recording level and microphone sensitivity to suit the recording conditions and personal preferences (☞ P.41, P.44).
- **Allows for system upgrades through enhanced options and equipment. Further enhances the pleasure of recording (☞ P. 82).**
- **Can playback WAV, WMA, and MP3 format files sent from a computer in addition to files recorded by the device itself. Can be enjoyed as a music player at any time.**
  Can hold approximately 2000 music files (WMA 128 kbps/ 4 minutes per song conversion) (☞ P.32, P.33, P.65, P.73).
- **Supports USB 2.0. Hi-Speed, which enables high-speed data transmission as an external memory device for your computer.**
  By connecting the computer with the USB, pictures, text data, etc. can be saved, and utilized to carry data (☞ P.64, P.77).
- **You can move or copy files between the built-in memory and SD card, and within the folders in the memory (☞ P. 56).**
- **You can split files (☞ P. 59), or delete a part of a file (☞ P. 39) recorded in PCM format in this recorder.**

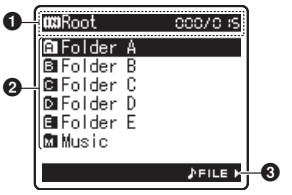
Identification of Parts



① **REMOTE jack**
Connect the receiver for the exclusive remote control set RS30W (optional). This enables operation of the main unit's record and stop functions through the remote control.
② **Built-in stereo microphone (R)**
③ **Built-in stereo microphone (L)**
④ **LINE IN jack**
⑤ **MIC jack**
⑥ **REC LEVEL dial**
⑦ **REC● button**
Recording indicator light (LED)
⑧ **MIC SENSE HIGH/LOW switch**
⑨ **LOW CUT ON/OFF switch**
⑩ **Strap hole**
⑪ **Display (LCD panel)**
⑫ **PEAK indicator light (LED)**
⑬ **STOP■ button**
⑭ **▲ button**
⑮ **►►I button**
⑯ **▼ button**
⑰ **LIST button**
⑱ **MENU button**
⑲ **A-B REPEAT button**
⑳ **Fn button**
㉑ **ERASE button**
㉒ **I◄◄ button**
㉓ **►/OK button**
㉔ **Card cover**
㉕ **EAR jack**
㉖ **VOLUME dial**
㉗ **USB terminal**
㉘ **POWER/HOLD switch**
㉙ **Power jack**
㉚ **Battery cover**
㉛ **Battery cover release button**
㉜ **Tripod socket**
㉝ **Built-in stereo speaker (R)**
㉞ **Built-in stereo speaker (L)**

Display (LCD Panel)

Folder List Display

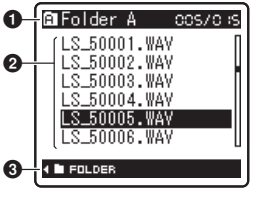


❶ Root folder indicator
Folder indicator
Recording media indicator or folder indicator/ Root folder name/ Current file number/ Total number of recorded files in the folder

❷ Folder name

❸ Guide indicator

File List Display

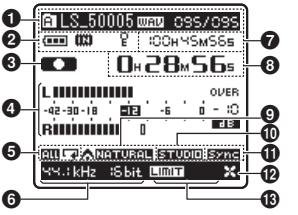


❶ Folder/ File indicator
Folder name/ Current file number/ Total number of recorded files in the folder

❷ File name

❸ Guide indicator

File Display



❶ Folder/ File indicator
Folder name/ File name/ File format/ Current file number/ Total number of recorded files in the folder

❷ Battery indicator

Recording media indicator
[IN] Built-in flash memory
[SD] SD card

Erase lock indicator

❸ Record/ Playback status indicator

❹ Level meter

❺ Playback Mode indicator

❻ Recording mode indicator

❼ During recording mode:
Remaining recording time
During playback or stop mode:
File length

❽ During recording mode:
Elapsed recording time
During playback mode:
Elapsed playback time

❾ [EUPHONY] indicator

❿ [Reverb] indicator

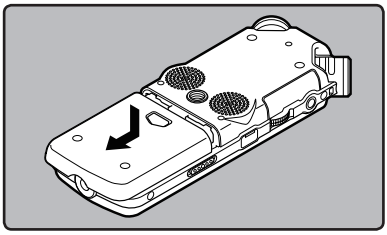
⓫ [V-Sync. Rec] indicator

⓬ [LowCutFilter] indicator

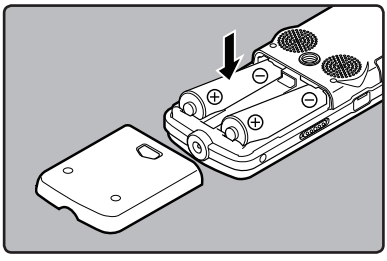
⓭ [Limiter] indicator
[Zoom Mic] indicator

Inserting Batteries

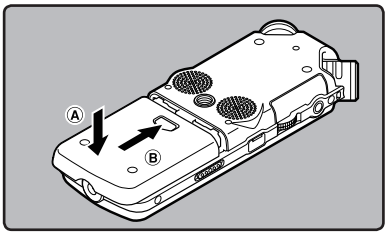
1 **Press the battery cover release button, and then slide the battery cover open while lightly pressing down on it.**



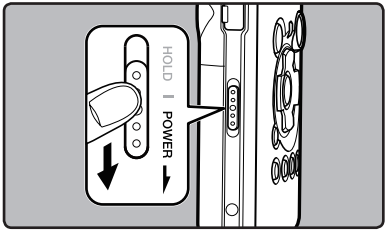
2 **Insert two AA batteries with the correct ⊕ and ⊖ polarities.**



3 **Close the battery cover completely by pressing to the direction Ⓐ, then sliding to the direction Ⓑ.**



4 **Slide the POWER/HOLD switch in the direction indicated by the arrow, and turn the power on.**



- If the "**hour**" indicator flashes in the display, see "**Setting Time and Date [Time & Date]**" (☞ P.15).

Replacing batteries

The battery indicator on the display changes as the batteries lose power.

- When [▭] appears on the display, replace the batteries as soon as possible. When the battery is too weak, [▭] and [**Battery Low**] appears on the display and the recorder shuts down.

Ni-MH Rechargeable Battery

Ni-MH rechargeable batteries B-01 4PE (optional) from Olympus can be used in the recorder. Use them with the Olympus Ni-MH Rechargeable Battery Charger B-90SU (optional) (For U.S.A. and Canada) or BU-90SE (optional) (For Europe) (☞ P.81).

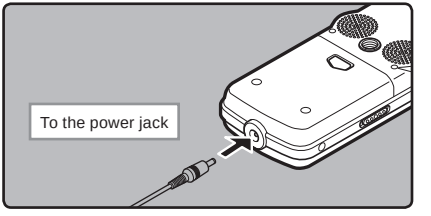
Notes

- This recorder cannot charge rechargeable batteries.
- Manganese battery may not be used in this recorder.
- When changing batteries, AA alkaline batteries or Olympus Ni-MH Rechargeable Batteries are recommended.
- Be sure to turn off power of the recorder before replacing the batteries (☞ P.13). Unloading the batteries while the recorder is in use may cause a malfunction such as corrupting the file, etc. If you are recording into a file and the batteries run out, you will loose your currently recorded file because the file header will not be able to close. It is crucial to change the batteries once you see only one Hash mark in the battery indicator.
- If it takes longer than 15 minutes to replace the dead battery or if you take the battery in and out repeatedly at short intervals, you may have to reset the time when you have loaded a fresh battery (☞ P.15).
- Remove the batteries if you are not going to use the recorder for an extended period of time.
- When playing a voice/music file, the recorder may be reset due to the reduction of the voltage output of the battery depending on the volume level even if [▮▮▮] is displayed in the battery indicator. In this case, lower the volume of the recorder.

Using the AC Adapter

Plug the AC adapter (optional) into a household power outlet and connect the power plug to the recorder's power connector (DC 5V). Always turn the recorder's power off before connecting.
If the AC adapter is plugged in while recording using batteries, it may not be possible to play back the voice data being recorded.

- Check the Olympus website regarding AC adapters which can be used with this recorder.

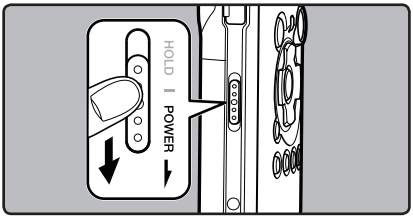


⚠Warning

- Always turn the recorder's power off before connection or disconnection.
- When the AC adapter is not in use, disconnect the power supply plug from the power outlet.
- Use only the correct power supply voltage as indicated on the adapter.
- Do not use the AC adapter when connecting the recorder to the USB port.

Power Supply

When the recorder is not being used, turn the power off to reduce battery consumption to a minimum. Even if the power is turned off, existing data, mode settings, and clock settings will be maintained.



Turning On the Power:

While the recorder's power is off, slide the POWER/HOLD switch in the direction indicated by the arrow.

- The display will turn on, and the power will be turned on.
- The resume function will bring the recorder back to the stop position in memory before power was turned off.
- When the batteries are removed from the recorder the resume function's stopped position will be erased.

Turning Off the Power:

Slide the POWER/HOLD switch in the direction indicated by the arrow for 1 second or longer.

- The display shuts off and the power will be turned off.
- The resume function remembers the stop position before the power is turned off.

Power save mode [AutoPowerOff]

If the recorder is stopped/not used for over 10 minutes (initial setting) while the power is turned on, the power will be turned off (☞ P.41, P.47).

- If any button is pressed prior to the battery turning off, the elapsed time count will start over again until this function takes effect.

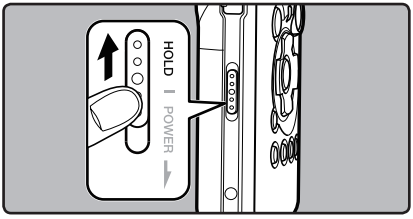
HOLD

If you bring the recorder is set to HOLD mode, the current conditions will be preserved, and all buttons will be disabled. This feature is useful when the recorder has to be carried in a bag or pocket.

Set the recorder to HOLD mode

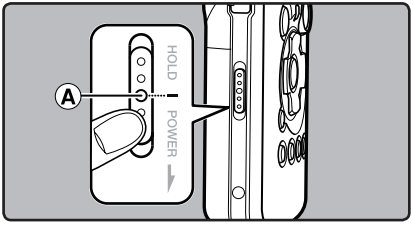
Slide the POWER/HOLD switch to the [HOLD] position.

- After [**Hold**] appears on the display, the recorder is set to HOLD mode.



Exit HOLD mode

Slide the POWER/HOLD switch to the Ⓐ position.



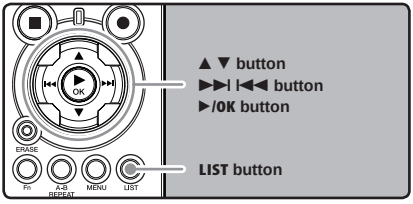
Notes

- If you press any button in HOLD mode, the clock display flashes for 2 seconds, but it will not operate the recorder.
- If HOLD is applied during playback (recording), operation is disabled with the playback (recording) state unchanged (When playback has ended and the recording has ended due to the remaining memory being used up, it will stop).
- The recorder can be effectively operated via its switch and dial, as well as the connected exclusive remote control set RS30W (optional), even when it is in HOLD mode.

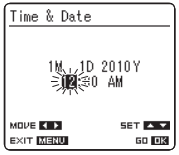
Setting Time and Date [Time & Date]

If you set the time and date beforehand, the information when the file is recorded is automatically stored for each file. Setting the time and date beforehand enables easier file management.

When you use the recorder for the first time after purchasing it, or when the batteries have been inserted without the device having been used in a long time, the [Set Time & Date] will appear. When the "hour" is flashing, conduct the setup from Step 1.



1 Press the ▶▶I or I◀◀ button to select the item to set.



Select the item from the "**hour**", "**minute**", "**year**" "**month**" and "**day**" with a flashing point

2 Press the ▲ or ▼ button to set.

- Follow the same steps by pressing the ▶▶I or I◀◀ button to select the next item, and press the ▲ or ▼ button to set.
- You can select between 12 and 24 hour display by pressing the **LIST** button while setting the hour and minute.

Example: 10:38 P.M

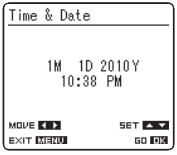
10:38 PM (Initial setting) ⟷ **22:38**

- You can select the order of the "**year**", "**month**", "**day**" by pressing the **LIST** button while setting them.

Example: January 1, 2010

1M 1D 2010Y (Initial setting) → **1D 1M 2010Y** → **2010Y 1M 1D** → (back to 1M 1D 2010Y)

3 Press the ▶/OK button to complete the setting.



- The clock will start from the set date and time. Press the ▶/**OK** button according to the time signal.

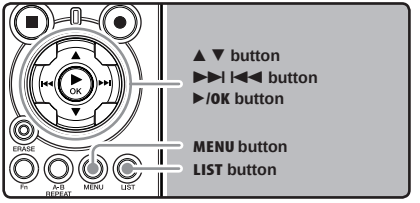
Note

- If you press the ►/**OK** button during the setup operation, the recorder will save the items that were set to that point.

Changing the Time and Date

While the recorder is during stop mode, press and hold the **STOP** ■ button to display the Time and Date, Remaining Memory and File Format.

If the Time and Date is not correct, set it using the procedure below.



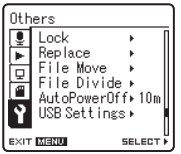
1 While the recorder is during stop mode, press the **MENU** button.

- The menu will appear on the display (☞ P.41).

2 Press the ▲ or ▼ button to select [**Others**] tab.

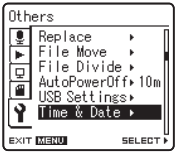
- You can change the menu display by moving the settings tab cursor.

3 Press the ►/**OK** or ►►I button to move the cursor to the item to set.



[**Others**] will appear on the display

4 Press the ▲ or ▼ button to select [**Time & Date**].



[**Time & Date**] will appear on the display

5 Press the ►/**OK** or ►►I button.

- The "**hour**" will flash on the display, indicating the start of the Time and Date setup process.

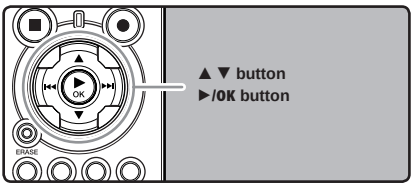
The following steps are the same as Step 1 through Step 3 of "**Setting Time and Date [Time & Date]**" (☞ P.15).

6 Press the **MENU** button to close the menu screen.

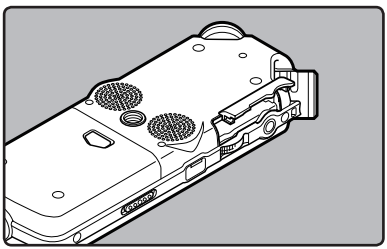
Inserting and Ejecting a Card

This recorder can be used with commercially available SD Cards as well as the built-in flash memory.

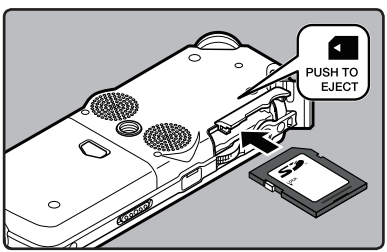
Inserting a Card



1 **While the recorder is during stop mode, open the card cover.**

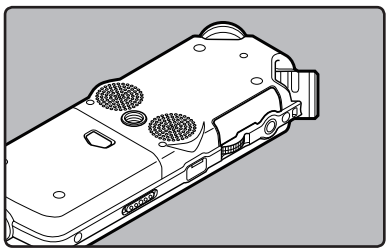


2 **Face the card the correct way and insert it into the card slot as shown in the diagram.**

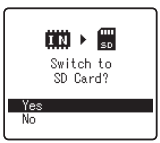


- Insert the card keeping it straight.
- The card stops with a click when it is inserted all the way.
- Inserting the card the wrong way or at an angle could damage the contact area or cause the card to jam.
- If the card is not inserted all the way, data may not be written to the card.

3 **Close the card cover securely.**

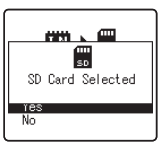


4 **When you are recording to a card, press the ▲ or ▼ button and select [Yes].**



When you insert the card, the recording media changeover display will appear.

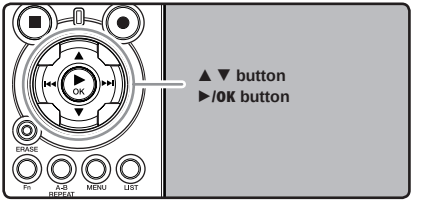
5 **Press the ►/OK button to complete the setting.**



Notes

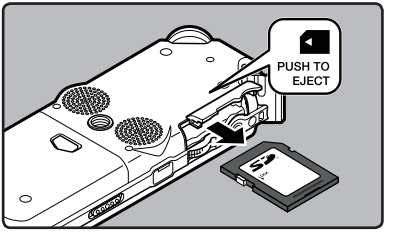
- It is possible to switch the recording media over to the built-in flash memory (☞ P.41, P.46).
- In some cases cards which have been formatted (initialized) by another device, such as a computer, cannot be recognized. Be sure to format them with this recorder before using (☞ P.51).
- When attempting to perform operations such as rewriting the contents of an SD Card in cases where the card has been write protected, [**SD Card Locked**] will appear. The playback operation can be performed, but the write protection must first be turned off when overwriting the contents on the card.
- Cards that are not to SD standards, such as multimedia cards, may not be used.

Ejecting a Card

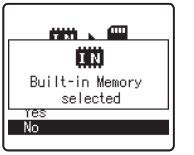


1 **While the recorder is during stop mode, open the card cover.**

2 **Push the card inward to unlock it, and let it eject partially.**



- The card is visibly out of the slot and can be removed safely.



When [**MemorySelect**] is set to [**SD Card**], [**Built-in Memory selected**] will appear

3 **Close the card cover securely.**

Note

- Releasing your finger quickly after pushing the card inward may cause it to eject forcefully out of the slot.

About the SD Card

When the SD Card is write protected, there will be a display reading [**SD Card Locked**]. Before inserting the card, turn off the write protection function. Check the Olympus website regarding SD cards which are confirmed operation with this recorder (☞ P.81).

If the write protection switch is facing the [**LOCK**] direction, recording and other functions cannot be carried out

Notes

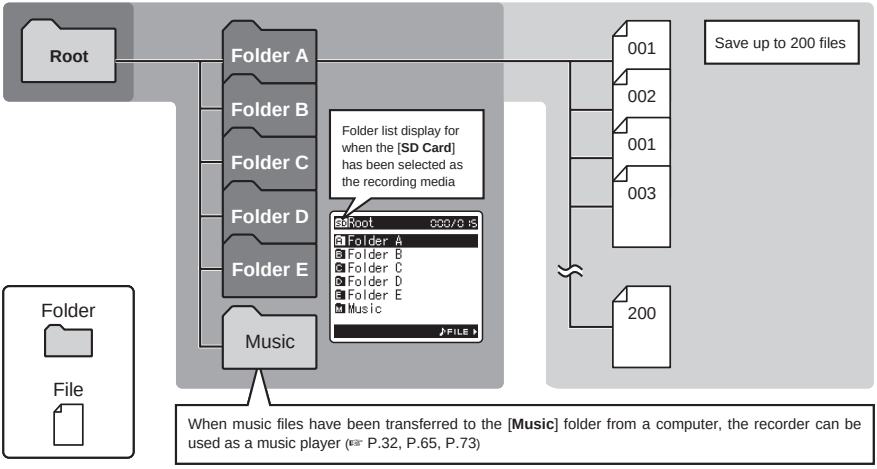
- The recorder may not recognize correctly on some SD cards. In this case, remove the card then put it again to see if the recorder recognizes the card.
- The processing performance reduces in a SD card when you repeat writing and delete. In this case, format the SD card (☞ P.51).

Notes on the Folders

The built-in flash memory or the SD Card can be used for the recording media. Regardless of the recording media, voice files and music files are separated into folders for voice recordings and folders for music playback that are organized in a branching tree-style and saved.

About the Folders for Voice Recordings

[**Folder A**] - [**Folder E**] are the folders for voice recordings. When recording with the recorder, select any one of the five folders and then record.



File names will be automatically created for files recorded by this recorder.

LS_5 0001 .WAV

① ② ③

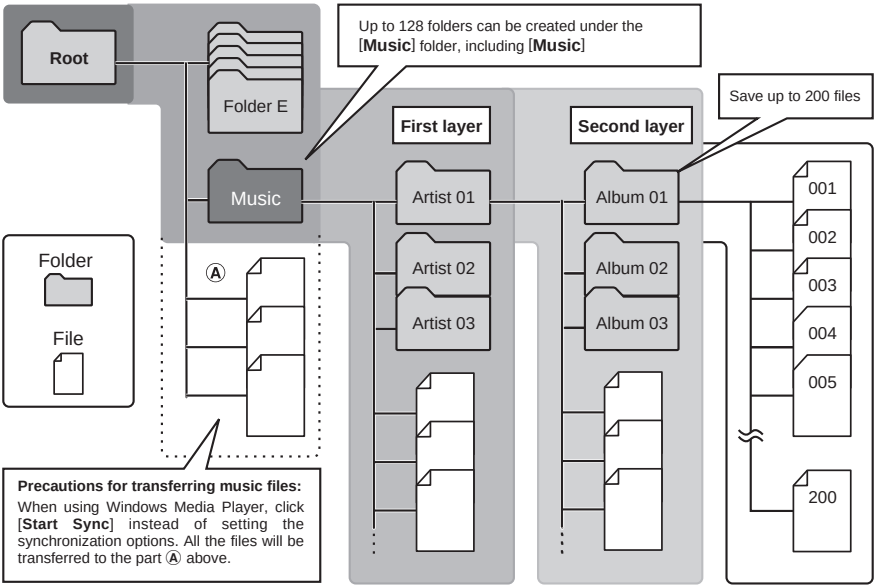
① **User ID:**
The name that has been set on the Digital Voice Recorder.

② **File number:**
A file number is consecutively assigned regardless of the changes in the recording media.

③ **Extension:**
These are the file name extensions for the recording format when recording with this device.
- Linear PCM format .WAV
- MP3 format .MP3
- WMA format .WMA

About the Folder for Music Playback

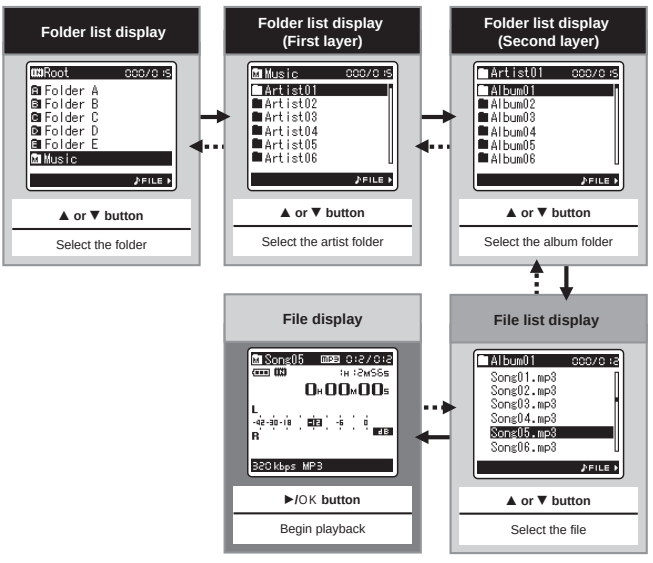
When transferring music files to the device using Windows Media Player, a folder is automatically created within the music playback folder which has a layered structure as shown in the diagram below. Music files that are in the same folder can be rearranged in preferential order and replayed (☞ P.54).



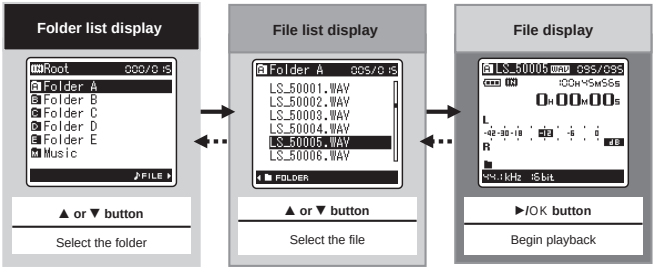
Selecting the Folders and Files

Change folders while the operation is stopped. For information on the layered structure of the folders, see the section entitled "**Notes on the Folders**" (☞ P.19, P.20).

Operation of the folders for music playback



Operation of the folders for voice recordings



■Moving through the levels

►/OK button

Proceed →

Each time you press this it opens the folder or file selected in the list display and proceeds down one level. The list display screen can be operated by the ►►I button

LIST button

Return ←

Each time you press this it returns up one level. The list display can be operated by the I◄◄ button

List display

The folders and files recorded in this recorder are displayed

File display

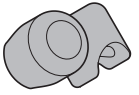
Information of the selected file is displayed. Enters in playback standby mode

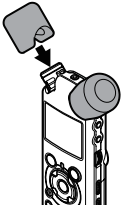
Before Recording

Getting Ready

Affix the windscreen:

Start recording after attach the windscreen (included within) to the microphone. The noise may occur even if a windscreen is attached when forcing wind blows against a microphone.





Select the media for recording:

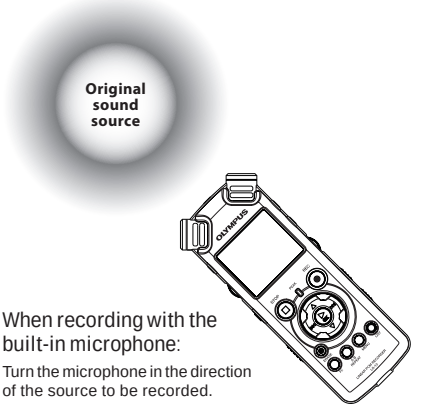
The built-in flash memory as well as an SD Card can be used (☞ P.17, P.41, P.46).

Select the recording format:

Recording can be performed through the linear PCM format, as well as the WAV, MP3 and WMA formats (☞ P.41, P.43).

Turn the Microphone Toward the Original Sound Source

Turn the built-in stereo microphone in the direction that you would like to record. Placing the built-in stereo microphone over the display is the proper position for performing stereo recording. If it is below the display when recording then proper stereo recording cannot be performed because the position of the original sound will be recorded in reverse phase.

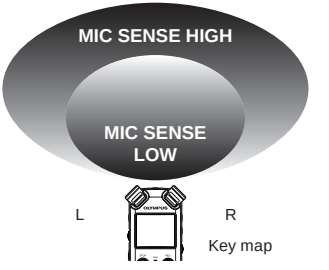


When recording with the built-in microphone:

Turn the microphone in the direction of the source to be recorded.

About the built-in stereo microphone:

The direction of capturing sound by the microphone can be changed with the **MIC SENSE HIGH/LOW** switch (☞ P.27).



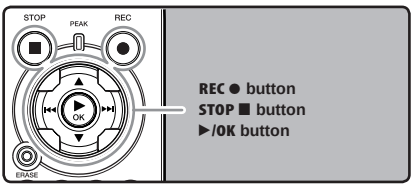
Key map

On mounting:

Accurate adjustments of the microphone's angle and the like can be made when the device is affixed to a commercially available tripod used for cameras.

Recording

Before starting recording, select a folder between [A] to [E]. These five folders can be selectively used to distinguish the kind of recording; for example, Folder [A] might be used to store private information, while Folder [E] might be dedicated to holding business information.



1 Select the recording folder (☞ P.19 to P.21).

How to change folders:

① Pressing the **LIST** button at the file display while stopped will return you back one layer above.
Pressing the **LIST** button repeatedly will bring you to the folder list display.

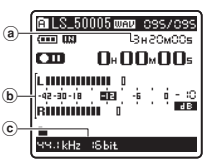
② Pressing button ▲ or ▼ at the folder list display will select the folders for voice recordings.

- Newly recorded audio will be saved as the last file in the selected folder.

2 Press the REC ● button and prepare to record.

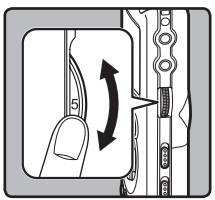
- Turn the microphone in the direction of the source to be recorded.

ⓐ Remaining recording time
ⓑ Level meter (change according to the recording level and recording function settings)
ⓒ Recording mode



- The recording indicator light will flash and [▮▮] will appear on the display.
- The voice sync level can be set when voice sync recording is on.
- [**Rec Mode**] cannot be changed in the recording standby mode or while recording. Configure this while the recorder is stopped (☞ P.41, P.43).
- The various functions related to recording can be configured to suit the recording conditions (☞ P.41, P.43, P.44).
- The level indicator position of the level meter will change in accordance with the switching of the various settings related to recording. Confirm the recording level through the level meter after switching the settings.

3 Use the REC LEVEL dial to adjust the recording level.

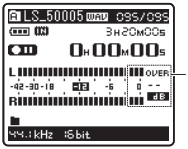


This can be adjusted in a range from [**0**] to [**10**]. The larger the number on the dial is the higher the recording level will be, and the indicator position of the level meter will grow larger as well

- This recorder is designed to be able to record cleanly and evenly, even in recording conditions such as when the volume of the source sound changes significantly. However, even higher sound quality recordings can be achieved by adjusting the recording level manually.
- If too big sound is input, the noise may occur even if [**Rec Level**] is set to [**Auto**] or [**Limiter On**]. Also, in certain cases the [**PEAK**] indicator light, which notifies large input, may not light. To ensure successful recordings, we recommend that you test the record function and volume before use.
- When [**Rec Level**] is set to [**Auto**] the recording level will be adjusted automatically. Set [**Rec Level**] to [**Manual**] when using the recording level adjustment function and the limiter function (☞ P.41, P.43).

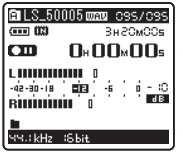
Actually producing the sound you would like to record:

- When a loud sound is produced the level meter will swing all the way over to the right while recording and the [**PEAK**] indicator light will turn on. When this happens the sound will be recorded in a distorted manner since the recording level is too high.



When the level meter is maxed out (the recorded sounds will be distorted)

- When a loud noise is produced, adjust the recording level so that the level meter remains in the vicinity of [**–6**].

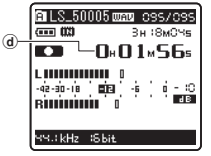


Example of conditions where the recording level has been lowered and the excess input has been adjusted

4 Press the REC ● button again will begin recording.

- [●] will appear on the display.

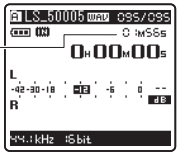
ⓓ Elapsed recording time



5 Press the STOP ■ button to stop recording.

- [●] will go out on the display.

ⓔ File length



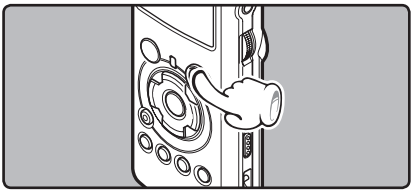
Notes

- The recording will continue even if the volume of a single file exceeds 2 GB in the linear PCM format recording (☞ P.43).
  ① The file is saved every 2 GB in separate files. It will be treated as multiple files when playing back.
  ② When the recording exceeds 2 GB, the number of files in the folder may exceed 200 files. The 201st file and later will not be recognized by the recorder, so check by connecting the recorder to a PC.
- When an SD Card is inserted in the recorder, be sure to confirm the recording media as either [**Built-in Memory**] or [**SD Card**] so that there is no mistake (☞ P.41, P.46).
- When attempting to perform operations such as rewriting the contents of an SD Card in cases where the card has been write protected, [**SD Card Locked**] will appear. The playback operation can be performed, but the write protection must first be turned off when overwriting the contents on the card (☞ P.18).
- If you select a folder other than [**A**] through [**E**] and press the **REC** ● button, an [**Can't record in this folder**] message will flash. Select a folder from [**A**] through [**E**] and start recording again.

- When remaining recording time is less than 60 seconds, the [**PEAK**] indicator light starts flashing in amber. When the recording time is decreasing to 30 or 10 seconds, the light flashes faster.
- [**Folder Full**] will appear when the folder capacity is full. Delete any unnecessary files before recording any further (☞ P.38).
- [**Memory Full**] will appear when the memory is full. Change the recordable media or delete any unnecessary files before recording any further (☞ P.38, P.41, P.46).
- When the recording button of the exclusive remote control RS30W (optional) is pressed once, recording will start immediately.
- Depending on the sound recording mode and the status of record media, the data transfer to the media cannot be done in time during recording and the skipped sound may be recorded. In this case, [**Data Write Error**] will appear during recording or when the recording is finished. After transferring the data to the PC, format the record media.
- We recommend the media to be formatted before recording.

Pause

While the recorder is during recording mode, press the REC ● button.



- [❚❚] will appear on the display.
- The recorder will time out after 60 minutes when left in "Rec Pause".

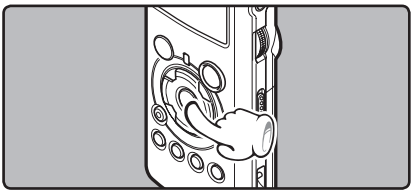
Resume Recording:

Press the REC ● button again.

- Recording will resume at the point of interruption.

To quickly check on the recorded contents

While the recorder is during recording mode, press the ►/OK button.



- [►] will appear on the display.
- Stop recording and the file that was just recorded will be played back.

Recommended settings by recording condition

The recorder is set up so that it can perform high quality recording equivalent to that of a music CD right away. The various functions relating to recording can be configured in detail to suit the recording conditions.

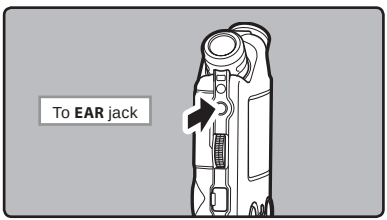
Recording settings	Recording condition					
	Indoor musical performance	Band performance in a practice studio	Performance in a vast hall, etc.	Outdoor environment sounds like wild birds singing, railroad noises, etc.	Conferences with large crowds in vast meeting venues	Conferences with a few people indoors
Recording level* (☞ P.23)	When the [**Rec Level**] is set to [**Manual**] you can adjust the recording level. Adjust while looking at the level meter					
Microphone sensitivity (☞ P.27)	[**LOW**]			[**HIGH**]		
Low Cut Filter (☞ P.27)	[**OFF**]				[**ON**]	
[**Rec Mode**] (☞ P.41, P.43)	The recording level can be adjusted to suit the volume of the original sound					
[**Rec Level**] (☞ P.41, P.43)	You can configure whether to adjust the recording level automatically or to adjust it manually. When [**Rec Level**] is set to [**Manual**] you can configure the limiter function					
[**Zoom Mic**] (☞ P.41, P.43)	The directivity of the built-in stereo microphone can be set according to the source to be recorded					
[**Rec Monitor**] (☞ P.41, P.44)	Select whether or not to output the recording monitor sound from the **EAR** jack					
[**Plug-inPower**] (☞ P.41, P.44)	Select whether or not to use the plug-in power function according to the external microphone connected to the **MIC** jack					

* When [**Rec Level**] is set to [**Auto**] the recording level will be adjusted automatically. When this happens, the recording level adjustment function and limiter function will not work (☞ P.23, P.41, P.43).

Listening While Audio is Recorded

If you start recording after inserting the earphone into the **EAR** jack on the recorder, you can hear the sound being recorded. The recording monitor volume can be adjusted by using the **VOLUME** dial.

Connect the earphone to the EAR jack on the recorder.



- After recording has started, you can hear the sound being recorded through the earphone. If the earphone is connected, no sound will come from the speaker.

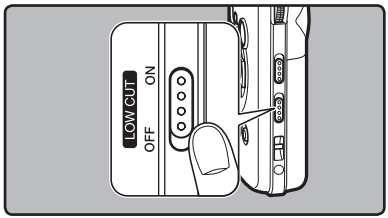
Notes

- Recording level cannot be controled using the volume button.
- When using the earphones, do NOT set the volume too high. Listening at very high volume may lead to hearing loss.
- Do not place earphones near a microphone as this may cause feedback.
- When the external speaker is connected while recording, there is a risk that audio feedback will occur. It is recommended that you use earphones for the recording monitor, or turn [**Rec Monitor**] to [**Off**] while recording (☞ P.41, P.44).
- When [**Rec Monitor**] is set to [**Off**] no sound will come out of the earphones while you are recording (☞ P.41, P.44).

Set the Low Cut Filter

The recorder has a Low Cut Filter function to minimize low-frequency sounds and record voices more clearly. This function can reduce noise from air conditioners, projectors and other similar noises.

Slide the LOW CUT ON/OFF switch and select [ON] or [OFF].



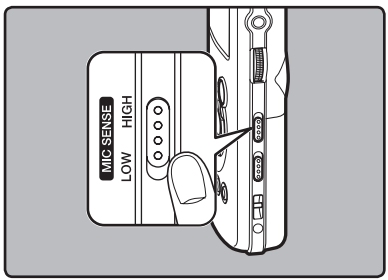
[**ON**]:
Enables the Low Cut Filter function.

[**OFF**]:
Disables this function.

Microphone Sensitivity

Microphone sensitivity is adjustable to meet recording needs.

Slide the MIC SENSE HIGH/LOW switch and select [HIGH] or [LOW].



[**HIGH**]:
This is a highly sensitive mode which can record surrounding noises.

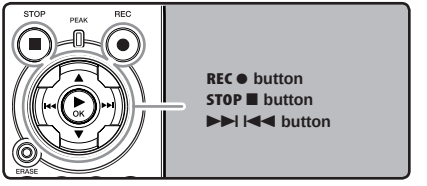
[**LOW**]:
This is the standard level of microphone sensitivity. Select this mode for cases where the volume of the source sound is high, such as a band performance.

Note

- When you would like to clearly record a speaker's voice, set the recorder to [**LOW**] and hold its built-in stereo microphone close to the speaker's mouth (5-10 cm) before recording.

Adjusting the voice sync level for recording

Voice sync recording allows you to start recording when voice louder than the voice sync level (detection level) is detected, and automatically stop recording when the voice becomes quiet. When voice sync recording is on (☞P.44) and the voice is below the voice sync level (detection level) for longer than the specified detection time, the recorder stops.



1 **Select the recording folder (☞ P.19 to P.21).**

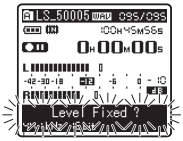
How to change folders:

① Pressing the **LIST** button at the file display while stopped will return you back one layer above.
Pressing the **LIST** button repeatedly will bring you to the folder list display.

② Pressing button ▲ or ▼ at the folder list display will select the folders for voice recordings.

- Newly recorded audio will be saved as the last file in the selected folder.

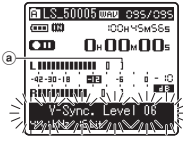
2 Press the REC ● button and prepare to record.



[**Level Fixed?**] will flash on the display.

- To use voice sync recording, set [**V-Sync. Rec**] on and set the detection time (☞ P.44).

3 Press the ▶▶I or I◀◀ button to adjust the voice sync level.

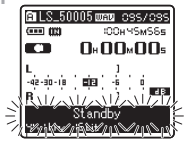


Appears the voice sync level in 23 steps ([**01**] to [**38**]) on the display.

- The higher the value, the more sensitive the recorders gets to sounds. At the highest value, even the faintest sound will activate recording.

ⓐ Voice sync level (moves to the right/left according to the set level)

4 Press the REC ● button again.



- Recording enters standby. [**Standby**] flashes on the display and the recording indicator light flashes.
  If input meets or exceeds the voice sync level, recording starts automatically. At this time, the recording indicator light glows.

5 Recording stops automatically.

- If the volume is equal to or less than voice sync level for longer than the specified time, recording stops automatically. At this time, the recording indicator light turns off.
- To manually stop recording, press **STOP** ■ button.

Recording from External Microphone or Other Devices

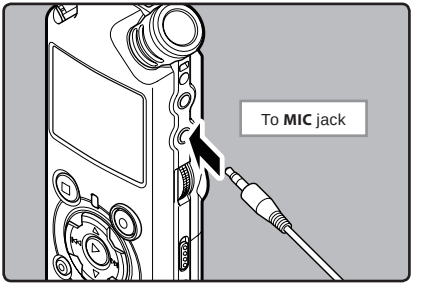
The external microphone and other devices can be connected and the sound can be recorded. Connect as follows by the device to be used.

- Do not plug and unplug devices into the recorder's jack while it is recording.

Recording with External Microphone:

Connect an external microphone to the MIC jack of the recorder.

- When recording while an external monaural microphone is connected, sound will only be recorded by the L-channel.



Applicable External Microphones (optional) (☞ P.81)

Stereo microphone: ME51S
The built-in large-diameter microphone enables sensitive stereo recording.

2 channel microphone (omni-directional): ME30W
These are highly sensitive omni-directional microphones supported by plug-in power which are well-suited to recording musical performances.

Highly sensitive noise-cancellation monaural microphone (unidirectional): ME52W
This microphone is used to record sound at a distance while minimizing surrounding noise.

Compact Gun Microphone (unidirectional): ME31
The directional microphones is useful for recordings such as outdoor recording of wild birds singing. The metal-cut body provides a sturdiness to the high rigidity.

Tie clip microphone (omni-directional): ME15
Small concealing microphone with a tie-clip.

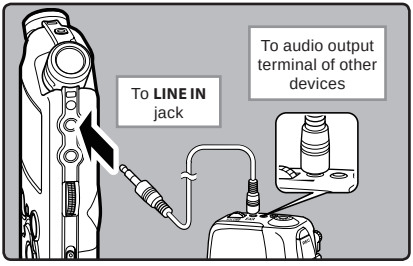
Telephone pickup: TP7
Earphone type microphone can be plugged into your ear while phoning. The voice or conversation over the phone can be clearly recorded.

Notes

- The built-in microphone will become inoperable when an external microphone is plugged into the recorder's **MIC** jack.
- Microphones supported by plug-in power can also be used. When the plug-in power function is set to [**On**] power will be supplied by the device to the microphone (☞ P.41, P.44).
- Turn the plug-in power function to [**Off**] when an external microphone not supported by plug-in power is connected, as there is the risk that noise may be generated while recording (☞ P.41, P.44).
- Do not connect the connecting cord to the **LINE IN** jack when recording from external microphone with this recorder.

Recording the Sound of Other Devices with This Recorder:

The sound can be recorded when connecting to the audio output terminal (earphone jack) of the other device, and the **LINE IN** jack of the recorder with the connecting cord KA334 (included within) for dubbing.

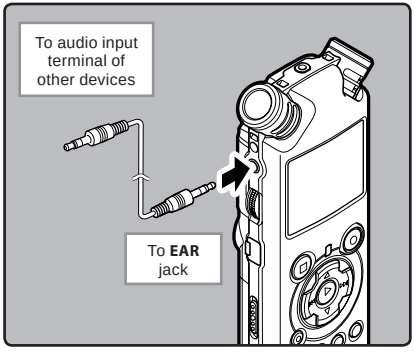


Notes

- If you are unable to produce a clear recording with this recorder even after adjusting the recording level (☞ P.23), this could potentially be because the output level for the connected devices is too high or too low. When external devices are connected, perform a test recording and then adjust the output level for the external devices.
- Do not connect the connecting cord to the **MIC** jack when recording sound from other device with this recorder.

Recording the Sound of This Recorder with Other Devices:

The sound of this recorder can be recorded to other devices when connected to the audio input terminal (line jack) of other devices and the **EAR** jack of this recorder, with the connecting cord KA334 (included within) for dubbing.

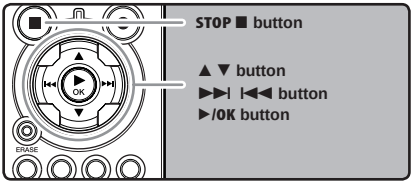


Notes

- When you adjust the various sound quality settings related to playback on the recorder, the audio output signal sent out from the **EAR** jack will change as well (☞ P.41, P.45).
- In case of recording on other devices without a line input, the input may be too large to control when the audio is input to the microphone jack. In this case, use the connecting cord KA333 (optional) with attenuation resistance (☞ P.82).

Playback

The recorder can playback WAV, MP3 and WMA format files. To playback a file recorded with other machines, you need to transfer (copy) it from a computer.



1 Select the folder which contains the files to be played back (☞ P.19 to P.21).

How to change folders:

① Pressing the **LIST** button at the file display while stopped will return you back one layer above.
Pressing the **LIST** button repeatedly will bring you to the folder list display.

② Pressing button ▲ or ▼ at the folder list display will select the folders for voice recordings and press the ▶▶I button.

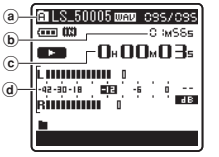
2 In the File list display, press the ▲ or ▼ button to select the file that you want to playback.

- In the File display, press the ▶▶I or I◀◀ button to select a file.

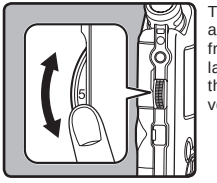
3 Press the ▶/OK button to start playback.

- [▶] will appear on the display.

ⓐ Folder name/ File name/ File format/ Current file number/ Total number of recorded files in the folder
ⓑ File length
ⓒ Elapsed playback time
ⓓ Level meter



4 Use the VOLUME dial to adjust to a comfortable listening volume.



The volume can be adjusted within a range from [**0**] to [**10**]. The larger the number on the dial is the higher the volume will be

5 Press the STOP ■ or ▶/OK button at any point you want to stop the playback.

- [▶] will go out on the display.
- This will stop the file being played back midway. When the resume function is activated the stopped location will be registered, even if the power is turned off. The next time the power is turned on, playback may be resumed from the registered stopped location.
- When the batteries are removed from the recorder the resume function's stopped position will be erased.

Settings relating to playback

Segment repeat (☞ P.36)	This allows you to repeatedly playback part of a file during playback.
[**Play Mode**] (☞ P.41, 45)	[**File**] [**File Repeat**] [**Folder**] [**Folder Repeat**] [**All**] [**All Repeat**]
[**Reverb**] (☞ P.41, 45)	[**Normal**] [**Studio**] [**Club**] [**Hall**] [**Dome**]
[**EUPHONY**] (☞ P.41, 45)	[**Normal**] [**Natural**] [**Wide**] [**Power**]
[**Replace**] (☞ P.54)	This changes the order of the files in the selected folder. It is useful for playing back files in a preferred order while in normal playback mode etc.
[**File Move**] (☞ P.56)	Selected files can be moved or copied within or between memory storages.
[**File Divide**] (☞ P.59)	PCM files recorded by this recorder can be divided.

About music file

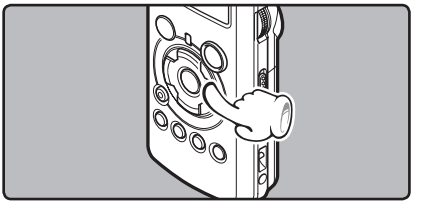
In cases where the recorder is unable to playback music files that have been transferred to it, check to make sure that the sampling rate and bit rate are in the range where playback is possible. Combinations of sampling rates and bit rates for music files which the recorder can playback are given below.

File format	Sampling frequency	Bit rate
WAV format	44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz	16 bit or 24 bit
MP3 format	**MPEG1 Layer3:** 32 kHz, 44.1 kHz, 48 kHz **MPEG2 Layer3:** 16 kHz, 22.05 kHz, 24 kHz	From 8 kbps up to 320 kbps
WMA format	16 kHz, 22 kHz, 32 kHz, 44.1 kHz, 48 kHz	From 16 kbps up to 256 kbps

- Variable bitrate MP3 files (in which conversion bitrates can vary) may not play properly.
- For WAV files, this recorder can only play back those in the linear PCM format. WAV files other than these cannot be played back.
- This recorder is compatible with Microsoft Corporation DRM9, but not with DRM10.
- It is possible to playback the WMA files which are created by the Olympus Digital Voice Recorder.

Forwarding

While the recorder is during stop mode in the file display, press and hold the ▶▶I button.



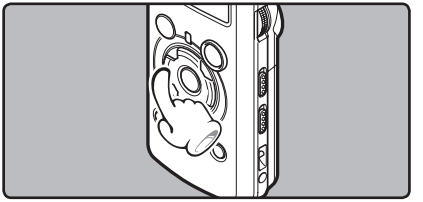
- [▶▶] will appear on the display.
- If you release the ▶▶I button, it will stop. Press the ▶/**OK** button to start playback from where it was stopped.

While the recorder is during playback mode, press and hold the ▶▶I button.

- When you release the ▶▶I button the recorder will resume normal playback.
- If there is an index mark or temp mark in the middle of the file, the recorder will stop at that location (☞ P. 35).
- The recorder stops when it reaches the end of the file. Continue pressing the ▶▶I button to proceed with the cue from the beginning of the next file.

Rewinding

While the recorder is during stop mode in the file display, press and hold the I◀◀ button.

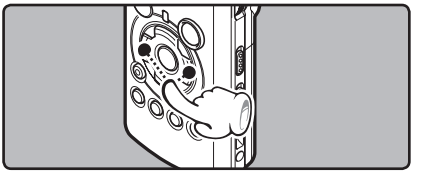


- [◀◀] will appear on the display.
- If you release the I◀◀ button, it will stop. Press the ▶/**OK** button to start playback from where it was stopped.

While the recorder is during playback mode, press and hold the I◀◀ button.

- When you release the I◀◀ button the recorder will resume normal playback.
- If there is an index mark or temp mark in the middle of the file, the recorder will stop at that location (☞ P. 35).
- The recorder stops when it reaches the beginning of the file. Continue pressing the I◀◀ button to proceed with the review from the end of the previous file.

Locating the Beginning of the File



While the recorder is during stop mode or playback mode, press the ▶▶I button.

- The recorder skips to the beginning of the next file.

While the recorder is during playback mode, press the I◀◀ button.

- The recorder skips to the beginning of the current file.

While the recorder is during stop mode, press the I◀◀ button.

- The recorder skips to the beginning of the previous file. If the recorder stop the midway of the file, return to the beginning of the file.

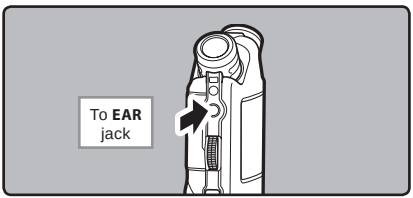
While the recorder is during playback mode, press the I◀◀ button twice.

- The recorder skips to the beginning of the previous file.

Playback Through Earphone

An earphone can be connected to the **EAR** jack of the recorder for listening.

- When the earphone is used, the recorder speaker will be switched-off.



Notes

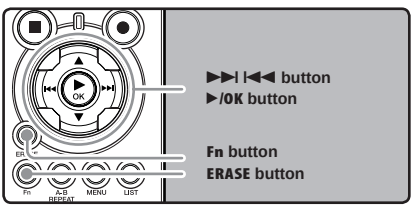
- When you skip to the beginning of the file during playback, the recorder will stop at the position of the index mark and temp mark. The index mark and temp mark will be skipped when you perform the operation in stop mode (☞ P. 35).
- To avoid irritation to the ear, insert the earphone after turning down the volume level.
- When you listen with the earphone during playback, do not raise the volume too much. It may cause hearing impairment and decrease in hearing ability.

Setting an index mark or a temp mark

If index marks and temp marks are placed, you can quickly find a location you want to listen to in fast forward and fast rewind and when cuing a file.

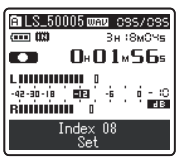
Index and temp marks can be added only during PCM recording with this recorder or to PCM files recorded using this recorder. Index marks cannot be added to WMA files, MP3 files or files made by recorders other than Olympus IC recorders. However, temp marks can be added to temporarily mark locations to which you wish to listen.

To add index marks, the index function must be registered to the **Fn** button (☞ P.48).



1 **Press the Fn button during file recording, recording pause, playing, or playback pause.**

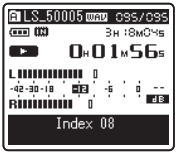
- A number appears on the display and an index mark or temp mark will be placed.
- Even after an index or temp mark is placed, recording or playback will continue so you can place index or temp marks in other locations in a similar manner.



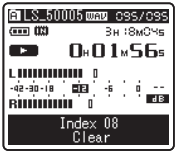
Clearing an index mark or a temp mark:

1 **Locate the index or temp mark you want to clear.**

2 **Press the ▶▶I or I◀◀ button to select the index or temp mark to erase.**



3 **While the index or temp number appears for approximately 2 seconds on the display, Press the ERASE button.**



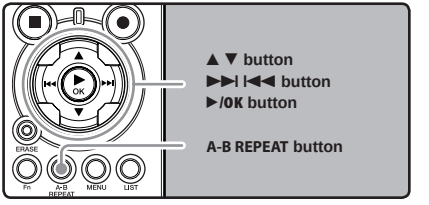
- The index or temp mark is erased.
- Index or temp numbers after the erased index or temp number will automatically move up.

Notes

- Index marks can be added during PCM recording with this recorder or to PCM files recorded using this recorder.
- Temp marks are temporary markings, so if you move to another file, switch to the list screen, or connect the recorder to a computer, they will be automatically erased.
- Up to 16 index and temp marks can be set in a file. If you try to place more than 16 index or temp marks, the [**Index Full**] message will appear for index marks, and [**Temp Mark Full**] for temp marks.
- Index or temp marks cannot be set or erased in a locked file (☞ P.47).

How to begin segment repeat playback

This function enables repeated playback of part of the file being played.

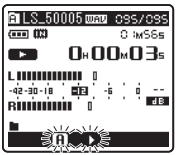


1 **Select a file that has a segment you would like to play back repeatedly (☞ P.19 to P.21).**

2 **In the File list display, press the ▲ or ▼ button to select the file.**
- In the File display, press the ▶▶I or I◀◀ button to select a file.

3 **Press the ▶/OK button to start playback.**

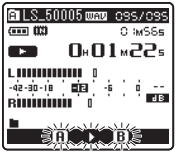
4 Press the **A-B REPEAT** button at the point you want to start segment repeat playback.



[A] will flash on the display

- Fast forwarding and rewinding (☞ P.29) can be conducted when [A] is flashing in the same manner as during normal playback, and you can quickly proceed as far as the end position (☞ P.34).
- When it reaches to the end of the file while [A] is flashing, the point will become the end position, and repeat playback will start.

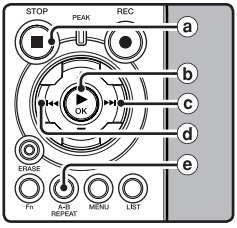
5 Press the **A-B REPEAT** button again at the position where you want to end segment repeat playback.



- The recorder repeatedly plays back the segment until the segment repeat playback is cancelled.

Cancel the segment repeat playback function

Pressing any of the following buttons will release the segment repeat playback.



ⓐ **Press the STOP ■ button**
Pressing the **STOP** ■ button will release segment repeat playback, and stop playback.

ⓑ **Press the ►/OK button**
Pressing the **►/OK** button will release segment repeat playback, and stop playback.

ⓒ **Press the ►►I button**
Pressing the **►►I** button will release segment repeat playback, and cue to the beginning of the next file.

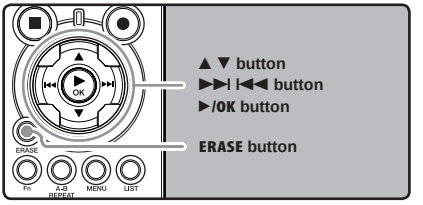
ⓓ **Press the I◄◄ button**
Pressing the **I◄◄** button will release segment repeat playback, and reverse to the beginning of the current file.

ⓔ **Press the A-B REPEAT button**
Pressing the **A-B REPEAT** button will release segment repeat playback, and playback continues without repeating.

Erasing

Erasing One File at a Time

A selected file can be erased from a folder.

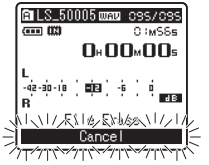


1 **Select the folder which contains the files you want to erase (☞ P.19 to P.21).**

2 **In the File list display, press the ▲ or ▼ button to select the file you want to erase.**

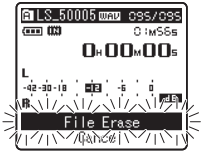
- In the File display, press the ▶▶I or I◀◀ button to select a file.

3 **While the recorder is during stop mode, press the ERASE button.**

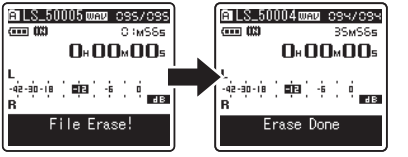


[**Cancel**] will flash on the display

4 **Press the ▲ button to select [File Erase].**



5 **Press the ▶/OK button.**

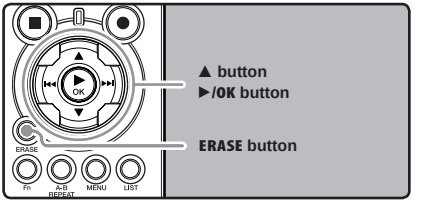


- The display changes to [**File Erase!**] and erasing will start.
- [**Erase Done**] is displayed when the file is erased. File numbers will be reassigned automatically.

Erase All Files from a Folder

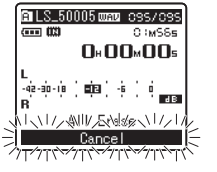
All files in a folder can be erased simultaneously.

The locked files (☞ P.41, P.47) and the files set to read-only on the PC will not be erased.



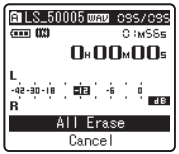
1 **Select the folder that you want to erase (☞ P.19 to P.21).**

2 **While the recorder is during stop mode, press the ERASE button twice.**



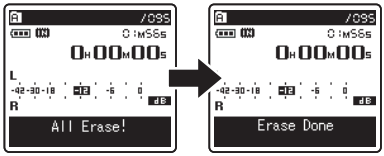
[**Cancel**] will flash on the display

3 Press the ▲ button to select [All Erase].



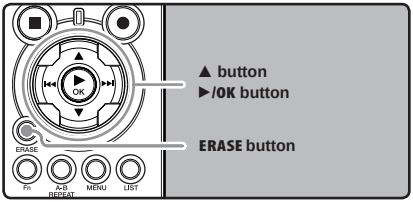
4 Press the ►/OK button.

- The display changes to [**All Erase!**] and erasing will start. [**Erase Done**] is displayed when the files are erased.



Partially erase a file

Only a PCM file recorded in the recorder can be partially erased.



1 Select the folder which contains the files you want to partial erase (☞ P.19 to P.21).

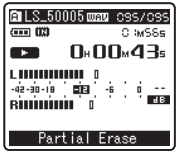
2 In the File list display, press the ▲ or ▼ button to select the file you want to partial erase.

- In the File display, press the ►►I or I◄◄ button to select a file.

3 Play the file you want to partial erase.

- Forward a file to the position that shall be erased. If the file is long, use the ►►I button to move to the position you want to delete.

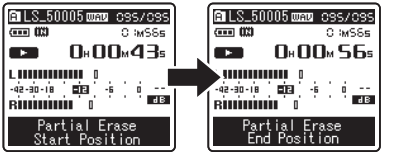
4 At the starting position of the partial erase, press the ERASE button.



[**Partial Erase**] will flash on the display.

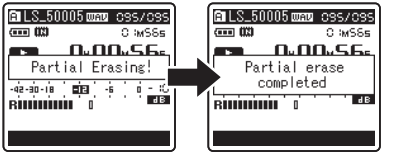
5 Press the **ERASE** button again.

- [**Partial Erase Start Position**] and [**Partial Erase End Position**] on the display flash alternately. When the lights are flashing, playback continues and you can rewind or fast-forward as usual and fast-forward to the end of erase. If the file reaches the end during the flashing of the lights, that will be the position where erase ends.



6 At the position you want to end partial erase, press the **ERASE** button again.

- The display will switch to [**Partial Erasing !**] and start the partial erase. The deletion is completed when [**Partial erase completed**] is displayed.
- Playback will stop at the end location of the partial erase.



Notes

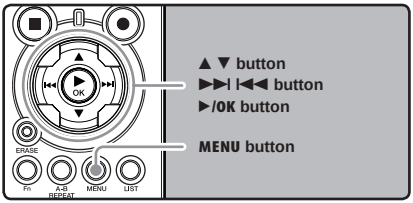
- Partial erase is not applicable to files recorded in the WMA or MP3 formats.
- The File Created Date will not change even if the file is partially erased.
- An erased file cannot be restored. When an SD Card is inserted in the recorder, be sure to confirm the recording media as either [**Built-in Memory**] or [**SD Card**] so that there is no mistake (☞ P.41, P.46).
- When attempting to perform operations such as rewriting the contents of an SD Card in cases where the card has been write protected, [**SD Card Locked**] will appear. The playback operation can be performed, but the write protection must first be turned off when overwriting the contents on the card (☞ P.18).
- The locked files and files set as read-only cannot be erased (☞ P.41, P.47).
- If an action is not selected within 8 seconds, the recorder will return to stop status.
- Never perform operations such as the following while processing, as they may damage the data. In addition, replace the batteries with two new ones in order to ensure that the batteries will not run out while processing.

  ① Turning off the power while processing.
  ② Removing the batteries while processing.
  ③ Remove the SD Card during processing when [**SD Card**] is being used as the recording media.

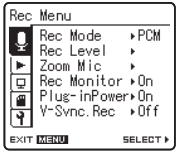
  Performing any of these operations may damage the data.
- You cannot delete folders through the recorder.

Menu Setting Method

Items in menus are categorized by tabs, so select a tab first and move to a desired item to quickly set it. You can set each menu item as follows.



1 While the recorder is during stop mode, press the MENU button.



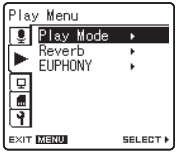
The menu will appear on the display

- Menu items can be set during a recording or playback (☞ P.50).

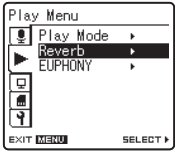
2 Press the ▲ or ▼ button to move to the tab that contains the item you want to set.

- You can change the menu display by moving the settings tab cursor.

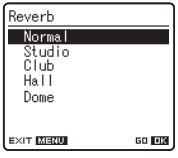
3 Press the ▶/OK or ▶▶I button to move the cursor to the item to set.



4 Press the ▲ or ▼ button to move to the item you want to set.



5 Press the ▶/OK or ▶▶I button.



- Moves to the setting of the selected item

6 Press the ▲ or ▼ button to change the setting.

7 Press the ►/OK button to complete the setting.

- You will be informed that the settings have been established via the screen.
- Pressing the I◄◄ button without pressing the ►/**OK** button will cancel the settings and return you to the previous screen.

8 Press the MENU button to close the menu screen.

- When in the menu screen during recording or playback, pressing the I◄◄ or **MENU** button will allow you to return to the playback screen without interrupting recording or playback.

Notes

- The recorder will stop if you leave it idle for 3 minutes during a menu setup operation, when a selected item is not applied.
- When entering menu settings during recording or playback, the menu settings will be cancelled if 8 seconds elapse with no buttons being pressed.

■ Rec Menu

Rec Mode

The recorder can record in the linear PCM format. High resolution recording at a high sampling rate and high bit rate equivalent or superior to that of a music CD is possible. Moreover, it also supports the MP3 and WMA formats.

1. Select the recording format.

Setting

[**PCM**]: This is an uncompressed audio format which is used for music CDs and the like.
[**MP3**]: MPEG is the international standard established by a working group of the ISO (International Organization for Standardization).
[**WMA**]: This is an audio compression encoding method that was developed by the Microsoft Corporation in the US.

2. Select the recording rate.

Setting:

[**PCM**]**:** [**96kHz/24bit**] to [**44.1kHz/mono**]
[**MP3**]**:** [**320kbps**] to [**mono**]
[**WMA**]**:** [**160kbps**] to [**mono**]

- When the recording format is set to the MP3 or WMA formats, the sampling rate will be encoded and processed at 44.1 kHz.
- When a high recording rate setting is used the file capacity will increase. Make sure that the amount of memory remaining is sufficient before recording (☞ P.46).
- If the directional microphone function is used, you cannot change [**PCM**] setting in [**Rec Mode**] other than [**44.1kHz/16 bit**]. You use the all modes in [**MP3**] or [**WMA**] of [**Rec Mode**].
- When [**mono**] of [**MP3**] is selected, the recording rate will be set to 64kbps.
- When [**mono**] of [**WMA**] is selected, the recording rate will be set to 32kbps.

Rec Level

You can configure whether to adjust the recording level automatically or to adjust it manually.

1. Select the Recording level setting.

Setting

[**Manual**]**:** Recording is performed by manually adjusting the recording level. When [**Rec Level**] is set to [**Manual**] you can configure the limiter function.
[**Auto**]**:** Recording is performed by automatically adjusting the recording level. This is useful for when you will be recording right away.

2. Select the Limiter setting.

This recorder is equipped with a limiter function that corrects the recording level down to an appropriate range in cases where a loud noise is suddenly picked up. This prevents distortion caused by an excessive recording level.

Setting:

[**Limiter On**]: Enables the limiter function, thus preventing distortion when recording.
[**Limiter Off**]: Disables this function.

- When [**Rec Level**] is set to [**Auto**] the recording level will be adjusted automatically. Set [**Rec Level**] to [**Manual**] when using the recording level adjustment function and the limiter function.

Zoom Mic

The directional microphone function utilizes DiMAGIC's (DiMAGIC Co., Ltd.) DiMAGIC Virtual Microphone (DVM) technology. DVM is an audio pickup system which allows you to record by focusing on sound from any direction. From expansive stereo recording to high directivity recording, DVM represents the latest in directional control methods that allow you to switch to a single exclusive microphone.

Setting

[**Off**]: Record in natural stereo sound.
[**Wide**]: Record in expansive stereo sound.
[**Standard**]: Record in slight directivity stereo sound in the front direction.
[**Narrow**]: Record in directivity stereo sound.
[**Zoom**]: Record in high directivity sound. (Monaural recording)

- The directional microphone function has been designed so that this capability will be elicited only with the built-in stereo microphone. Please note that the recorder will become unable to record normally when using other commercially available microphones.
- You can use directional microphone only when [**PCM**] setting in [**Rec Mode**] is set to [**44.1kHz/16 bit**].

■ Rec Menu (Continued)

Rec Monitor	Select whether or not to output audio while recording from the earphone jack. **Setting** [**On**]: Enables the recording monitor function. Sound will be output from the **EAR** jack. [**Off**]: Disables this function. Sound will not be output from the **EAR** jack. • When the external speaker is connected while recording, there is a risk that audio feedback will occur. It is recommended that you use earphones for the recording monitor, or turn [**Rec Monitor**] to [**Off**] while recording (☞ P.27). • When [**Rec Monitor**] is set to [**Off**] no sound will come out of the earphones while you are recording (☞ P.27).
Plug-inPower	External microphones which are supported by plug in power can also be used. Whether or not to supply power to external microphones can be configured. **Setting** [**On**]: When the plug-in power function is activated, power will be supplied to the connected external microphone. Select this when external microphones supported by plug-in power are connected (☞ P.30). [**Off**]: Disables this function. Select this when external microphones not supported by plug-in power are connected. • Turn the plug-in power function to [**Off**] when an external microphone not supported by plug-in power is connected, as there is the risk that noise may be generated while recording. • Phantom power cannot be supplied, even when the plug in power function is set to [**On**].
V-Sync. Rec	Voice sync recording starts when a voice louder than the voice sync level (detection level) is detected. When the voice becomes quiet, recording is automatically stopped. When voice sync recording is on and the voice is below the voice sync level (detection level) for longer than the specified detection time, the recorder stops. **Setting** [**On**]: [**1 second**] [**2 seconds**] [**3 seconds**] [**4 seconds**] [**5 seconds**] [**10 seconds**]: Sets the detection time. If the input (recording level) is equal to or below the specified level for longer than the specified detection time, the recorder stops. [**Off**]: Disables this function.

■ Play Menu

Play Mode

There are six play modes. You can select whether to play by file or folder, or all files stored in the recorder.

Setting:
[**File**]: Stop after playing back the current file.
[**File Repeat**]: Play the current file repeatedly.
[**Folder**]: Play files continuously in the current folder until the last file and stop.
[**Folder Repeat**]: Play all files in the current folder continuously.
[**All**]: Play all files in the selected memory continuously and stop.
[**All Repeat**]: Play all files in the selected memory continuously and repeatedly.

- In [**File**] mode, when the recorder comes to the end of the last file in the folder, [**End**] flashes for two seconds on the display and the recorder stops at the start of the last file.
- In [**Folder**] mode, when the recorder comes to the end of the last file in the folder, [**End**] flashes for two seconds on the display and the recorder stops at the start of the first file in the folder.
- In [**All**] mode, after playing the last file in the folder, the recorder will start playing from the first file in the next folder. When it comes to the end of the last file in the recorder, [**End**] flashes for two seconds on the display and the recorder stops at the start of the first file in the recorder.

Reverb

You can enjoy the reverberant sound of various space sizes such as from the recording studio to the dome.

Setting
[**Normal**]: Disables the reverb function. Select this when playing back original sounds as they are.
[**Studio**] [**Club**] [**Hall**] [**Dome**]: Select the preferred acoustical environment.

- When playing back WAV format files using these playback results, the sampling rate and bit rate will be converted downward from 96 kHz to 48 kHz and 24 bit to 16 bit, respectively.
- This function is only available during playback. This recorder cannot perform recording by using the playback results.
- When you adjust the various sound quality settings related to playback on the recorder, the audio output signal sent out from the **EAR** jack will change as well.

EUPHONY

This recorder is equipped with "**EUPHONY MOBILE**", the latest in surround sound systems which combines bandwidth correction, expansion technology, and virtual acoustical source processing technology. In addition to its natural, expansive feel, the recorder is equipped with the exceptional feature wherein listeners are less prone to developing an compressed or closed-in feel, or to growing tired over extended listening. On top of this, listeners are less prone to developing an oppressed or closed-in feel, or to growing tired over extended listening. Level adjustments of the [**EUPHONY**] setting can be set to four stages according to preference.

Setting:
[**Normal**]: Disables this function. Select this when playing back original sounds as they are.
[**Natural**]: This mode achieves natural bandwidth correction and acoustical field expansion.
[**Wide**]: This mode has an even more expansive feel.
[**Power**]: This mode focuses more on lower sound registers.

- When playing back WAV format files using these playback results, the sampling rate and bit rate will be converted downward from 96 kHz to 48 kHz, 88.2kHz to 44.1kHz and 24 bit to 16 bit, respectively.
- This function is only available during playback. This recorder cannot perform recording by using the playback results.
- When you adjust the various sound quality settings related to playback on the recorder, the audio output signal sent out from the **EAR** jack will change as well.

■ LCD/Sound Menu

Backlight	The display will remain lit for about 10 (Initial setting) seconds when a button on the recorder is pressed. **Setting** [**5 seconds**] [**10 seconds**] [**30 seconds**] [**60 seconds**] [**Always on**]: Set the length of time that the backlight will remain lit. [**Off**]: Disables this function. The backlight will not light up.
Contrast	Display contrast can be adjusted in 12 levels. **Setting:** You can adjust the LCD display contrast level from [**01**] to [**12**].
LED	You can set it so the LED indicator light does not turn on. **Setting** [**On**]: LED light will be set. [**Off**]: Disables this function. LED light will be cancelled.
Language	You can select the display language for this recorder. **Setting** [**English**] [**Français**] [**Deutsch**] [**Italiano**] [**Español**] [**Русский**] • The selectable language differs depending on the region.

■ Memory Menu

MemorySelect	When an SD Card is inserted you can select to record to either the built-in flash memory or to the SD Card (☞ P.14). **Setting** [**Built-in Memory**]: Built-in flash memory. [**SD Card**]: SD Card. • When attempting to perform operations such as rewriting the contents of an SD Card in cases where the card has been write protected, [**SD Card Locked**] will appear. The playback operation can be performed, but the write protection must first be turned off when overwriting the contents on the card (☞ P.18).
Memory Info.	The recordable capacity remaining and overall capacity of the recording media can seen from the menu screen. • When no SD Card is inserted only information for the built-in flash memory will seen. • The domain area which uses the administrative files which the recorder uses is included in the remaining capacity for the recording media. For SD cards in particular, in addition to this administrative domain the administrative domain area for the SD card is added in as well. Owing to this, the remaining capacity will be displayed as less than the card's specified capacity, yet this is not abnormal.
Format	(☞ P.51)

■ Others

Lock	Locking a file keeps important data from being accidentally erased. Locked files are not erased when you select to erase all files from a folder (☞ P.38). **Setting** [**On**]: Locks the file and prevents it from being erased. [**Off**]: Disables this function. Unlocks the file and allows it to be erased. • Select the files to be locked in advance before operating the menu. • When attempting to perform operations such as rewriting the contents of an SD Card in cases where the card has been write protected, [**SD Card Locked**] will appear. The playback operation can be performed, but the write protection must first be turned off when overwriting the contents on the card (☞ P.18).
Replace	(☞ P.54)
File Move	(☞ P.56)
File Divide	(☞ P.59)
AutoPowerOff	Forgetting to turn the power off can be prevented. If the recorder remains in stop mode for over 10 minutes (Initial setting) while the power is turned on, the power will be turned off. **Setting** [**5 minutes**] [**10 minutes**] [**30 minutes**] [**60 minutes**]: Set the length of time before the power will be turned off. [**Off**]: Disables this function. • If any button is pressed, the elapsed time count before the power turns off will start over again.
USB Settings	There are two USB settings when connecting the recorder to a computer using the supplied USB cable. [**Storage Class**] is used when using the recorder as an external storage device. [**Audio Class**] is used when using the recorder as a USB microphone. **Setting:** [**Storage Class**]: The recorder is recognized as an external storage device by the computer. [**Audio Class**]: Use this setting when connecting the recorder to a computer as a USB microphone.
Time & Date	(☞ P.15)

■ Others (Continued)

Fn Setting

When functions are registered in the **Fn** button, each time the **Fn** button is pressed, you can set or change the menu of registered function.

Setting:

[**Off**]: No functions will be allocated to the button.

[**Index**] (☞ P.35)
[**Rec Level**]: (☞ P.43)
[**Play Mode**] (☞ P.45)
[**EUPHONY**] (☞ P.45)
[**Property**] (☞ P.49)
[**Rec Mode**] (☞ P.43)
[**Zoom Mic**] (☞ P.43)
[**Reverb**] (☞ P.45)
[**MemorySelect**] (☞ P.46)
[**Light**] (☞ P.46)

To call up a registered function:

When the Fn button is pressed, menu setting display of registered function will appear:

[**Rec Mode**]: [**PCM**] [**MP3**] [**WMA**]: The recording rate can be configured for each file format.

[**Rec Level**]: [**Manual**] [**Auto**]: You can configure whether to adjust the recording level automatically or to adjust it manually. When the [**Rec Level**] is set to [**Manual**] you can configure the limiter function.

[**Zoom Mic**]: [**Off**] [**Wide**] [**Standard**] [**Narrow**] [**Zoom**]

[**Play Mode**]: [**File**] [**File Repeat**] [**Folder**] [**Folder Repeat**] [**All**] [**All Repeat**]

[**Reverb**]: [**Normal**] [**Studio**] [**Club**] [**Hall**] [**Dome**]

[**EUPHONY**]: [**Normal**] [**Natural**] [**Wide**] [**Power**]

[**MemorySelect**]: [**Built-in Memory**] [**SD card**]

[**Property**]: File and folder information can be confirmed from the menu screen.

Each time the Fn button is pressed, the setting of registered function is changed:

[**Light**]: [**On**] [**Off**]: Select backlight on or off by pressing the **Fn** button.

If the Fn button is pressed during recording or playback, the registered function is performed:

[**Index**]: With each press of the **Fn** button, an index mark or temp mark is added.

- When the registered function is [**Rec Mode**], [**MemorySelect**], or [**Property**], these will not function if the **Fn** button is pressed during recording or playback. While the recorder is during stop mode, press the **Fn** button.

■ Others (Continued)

Menu Reset

This returns the functions back to their initial settings (factory default).

Setting
[**Start**]: Returns the settings to their initial values.
[**Cancel**]: Takes you back to the [**Others**].

- After resetting the settings, the time settings and file numbers will be preserved from before the reset and will not return to their initial settings.

Menu settings after setting reset (initial settings):

■ Rec Menu

[**Rec Mode**]	
Recording format	[**PCM**]
Recording rate	[**44.1kHz/16bit**]
[**Rec Level**]	
Recording level	[**Manual**]
Limiter function	[**Limiter On**]
[**Zoom Mic**]	[**Off**]
[**Rec Monitor**]	[**On**]
[**Plug-inPower**]	[**On**]
[**V-Sync. Rec**]	[**Off**]

■ Play Menu

[**Play Mode**]	[**File**]
[**Reverb**]	[**Normal**]
[**EUPHONY**]	[**Normal**]

■ LCD/Sound Menu

[**Backlight**]	[**10 seconds**]
[**Contrast**]	[**06**]
[**LED**]	[**On**]

■ Memory Menu

[**MemorySelect**]	[**Built-in Memory**]

■ Other

[**AutoPowerOff**]	[**10 minutes**]
[**USB Settings**]	[**Storage**]
[**Fn Setting**]	[**Off**]

System Info.

You can check the recorder's information on the menu screen. [**Model Name**], [**Version**] and [**Serial Number**] appears on the display.

Property

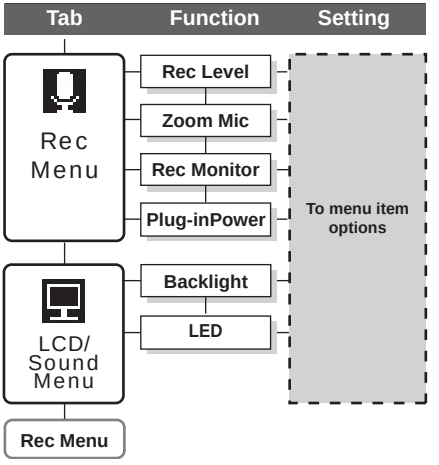
File and folder information can be confirmed from the menu screen.

When the file is selected: [**Name**] [**Date**] [**Size**] [**Length**] and [**File Format**] will appear on the display.

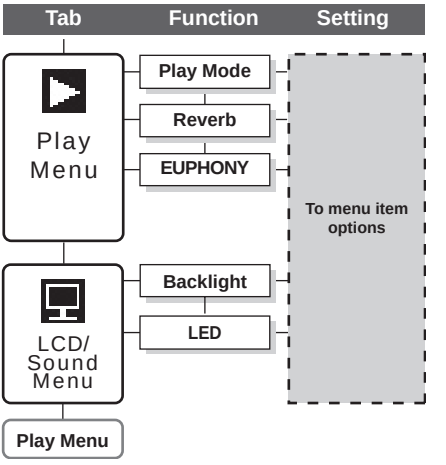
When the folder is selected: [**Name**] and [**Date**] will appear on the display.

- Select the files for which you would like to confirm information in advance before operating the menu.

◆Setting menu during recording

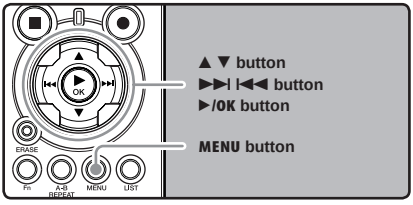


◆Setting menu during playback



Formatting the Recorder [Format]

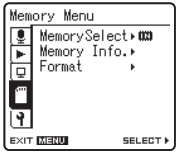
If you format the recorder, all files will be removed and all function settings will return to defaults except date and time settings. Transfer any important files to a computer before formatting the recorder.



1 **While the recorder is during stop mode, press the MENU button.**

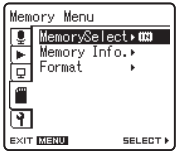
- The menu will appear on the display (☞ P.41).

2 **Press the ▲ or ▼ button to select [Memory Menu] tab.**



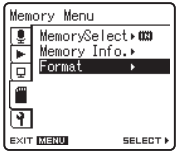
- You can change the menu display by moving the settings tab cursor.

3 **Press the ▶/OK or ▶▶I button to move the cursor to the item to set.**

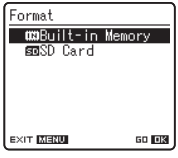


[**Memory Menu**] will appear on the display

4 **Press the ▲ or ▼ button to select [Format].**



5 **Press the ▶/OK or ▶▶I button.**

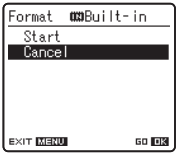


[**Format**] will appear on the display

6 **Press the ▲ or ▼ button to select the recording media to format.**

- When formatting an SD Card, cancel the write protection function before inserting the card into the recorder (☞ P.18).

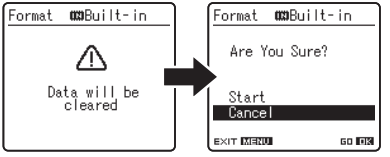
7 Press the ►/OK button.



[**Cancel**] will appear on the display

8 Press the ▲ button to select [Start].

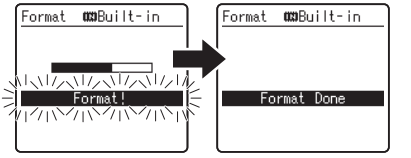
9 Press the ►/OK button.



- After the [**Data will be cleared**] message is on for two seconds, [**Cancel**] will turn on.

10 Press the ▲ button again to select [Start].

11 Press the ►/OK button.



- Formatting begins and [**Format !**] flashes on the display.
- [**Format Done**] appears when formatting ends.

Notes

- When an SD Card is inserted in the recorder, be sure to confirm the recording media as either [**Built-in Memory**] or [**SD Card**] so that there is no mistake (☞ P.41, P.46).
- When attempting to perform operations such as rewriting the contents of an SD Card in cases where the card has been write protected, [**SD Card Locked**] will appear. The playback operation can be performed, but the write protection must first be turned off when overwriting the contents on the card (☞ P.18).
- Never perform operations such as the following while processing, as they may damage the data. In addition, replace the batteries with two new ones in order to ensure that the batteries will not run out while processing.

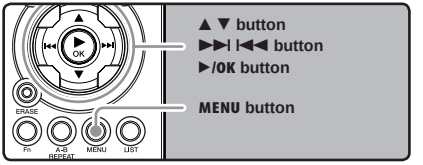
  ① Turning off the power while processing.
  ② Removing the batteries while processing.
  ③ Remove the SD Card during processing when [**SD Card**] is being used as the recording media.

  Performing any of these operations may damage the data.
- Never format the recorder from a PC.
- Once the recorder is formatted, the music files with DRM may not be transferred to the recorder again.

- When the recorder is formatted, all the saved data, including locked files and read-only files, are erased.
- After formatting, recorded audio file names may start from [**0001**].
- When returning the settings for the functions to their initial settings, use [**Menu Reset**] (☞ P.41, P.49).
- Formatting on the recorder will be Quick Format. If you format the SD card, information of file management is refreshed and the data inside the SD card is not deleted completely. When handing over and disposing the SD card, be careful about the data leakage from the SD card. We recommend the SD card to be destroyed when you dispose the SD card.

Rearranging files [Replace]

You can move a file in a folder to change the order of playback. First select the folder (file) for which you want to change the playback order.

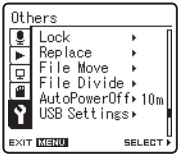


1 **Select the folder for which you would like to rearrange the song order (☞ P.17 to P.21).**

2 **While the recorder is during stop mode, press the MENU button.**

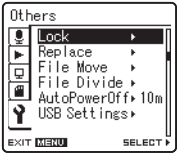
- The menu will appear on the display (☞ P.41).

3 **Press the ▲ or ▼ button to select [Others] tab.**



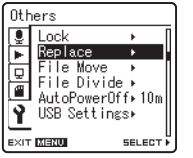
- You can change the menu display by moving the settings tab cursor.

4 **Press the ▶/OK or ▶▶I button to move the cursor to the item to set.**

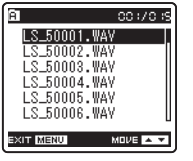


[**Others**] will appear on the display.

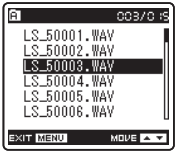
5 **Press the ▲ or ▼ button to select [Replace].**



6 **Press the ▶/OK or ▶▶I button.**

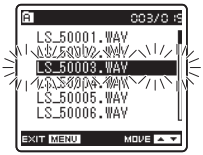


7 **Press the ▲ or ▼ button to select the file you want to move.**

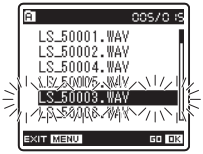


8 Press the ►/OK or ►►I button.

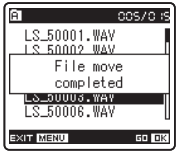
- The cursor will flash to confirm that the file can be moved.



9 Press the ▲ or ▼ button to select the location to move it to.



10 Press the ►/OK button to complete the setting.



- If there are more files to move, repeat Steps 7 through 10.
- Pressing the I◄◄ button without pressing the ►/**OK** button will cancel the settings and return you to the previous screen.

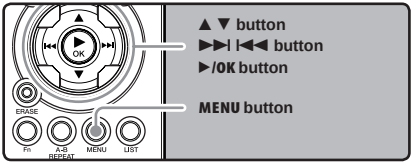
11 Press the MENU button to close the menu screen.

Note

- When attempting to perform operations such as rewriting the contents of an SD Card in cases where the card has been write protected, [**SD Card Locked**] will appear. The playback operation can be performed, but the write protection must first be turned off when overwriting the contents on the card (☞ P.18).

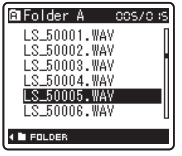
Moving Files [File Move]

Files saved in the built-in memory or the SD card can be moved or copied within the memory. Files can also be moved or copied between memory.



1 **Select the folder where the file you want to move or copy is saved.**

2 **In the File list display, press the ▲ or ▼ button to select the file you want to move or copy.**

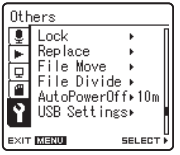


- In the File display, press the ▶▶I or I◀◀ button to select a file.

3 **While the recorder is during stop mode, press the MENU button.**

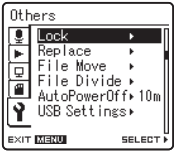
- The menu will appear on the display (☞ P.41).

4 **Press the ▲ or ▼ button to select [Others] tab.**

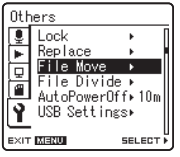


- You can change the menu display by moving the settings tab cursor.

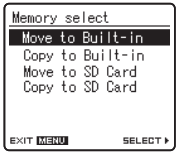
5 **Press the ▶/OK or ▶▶I button to move the cursor to the item to set.**



6 **Press the ▲ or ▼ button to select [File Move].**



7 Press the ►/OK or ►►I button.



[**File Move**] will appear on the display

8 Press the ▲ or ▼ button to choose the position to move or copy the file to.

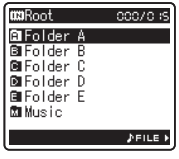
[**Move to Built-in**]:
Move a file in the built-in memory or SD card to another folder within the built-in memory.

[**Copy to Built-in**]:
Copy a file in the built-in memory or SD card to another folder within the built-in memory.

[**Move to SD Card**]:
Move a file in the built-in memory or SD card to another folder in the SD card.

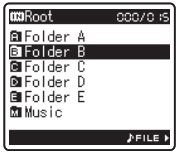
[**Copy to SD Card**]:
Copy a file in the built-in memory or SD card to another folder in the SD card.

9 Press the ►/OK or ►►I button.

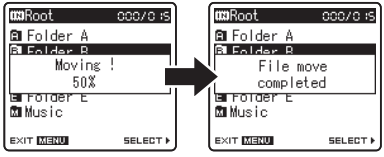


A Move or Copy folder selection screen is displayed.

10 Press the ▲ or ▼ button to select the folder you want to move or copy the file to.



11 Press the ►/OK button to complete the setting.



- [**Moving!**] or [**Copying!**] will appear on the display and moving or copying will start. During the process, the progress status will be shown in percentage. The process is completed when [**File move completed**] or [**File copy completed**] is displayed.

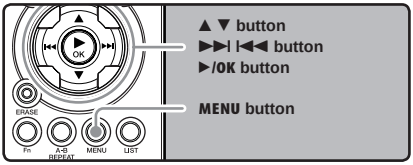
12 Press the MENU button to close the menu screen.

Notes

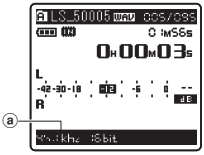
- The recorder cannot copy when the memory capacity is not sufficient.
- The recorder cannot move or copy when the number of file exceeds 199.
- Do not remove the batteries during moving or copying. This may damage the datas.
- A file cannot be moved or copied to the same folder.
- If there is a file with the same name in the move/copy destination folder, [**Cannot move. Same name file exists**] or [**Cannot copy. Same name file exists**] is displayed. The file will not be overwritten.
- When the operation is cancelled during moving or copying, the move or copy is cancelled.
- Files which are locked will remain so even after they are moved or copied.
- If you attempt to rewrite the contents in the SD card when the SD card is write protected, [**SD Card Locked**] will appear. The playback operation can be performed, but the write protection must first be turned off when overwriting the contents on the card (☞ P.18).
- DRM files cannot be moved or copied.
- Files cannot be moved or copied directly under the [**Root**] folder.

Splitting Files [File Divide]

PCM files recorded in this recorder can be split. Files with large capacities and long recording times can be split so that they are easier to manage and edit.



1 Select the PCM file you want to split, play or fast-forward the file and stop at where you want to split the file.

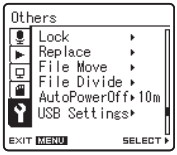


- Files with the recording mode of [**96kHz**], [**88.2kHz**], [**48kHz**] or [**44.1kHz**] are files recorded in the PCM format.
  ⓐ Recording mode

2 While the recorder is during stop mode, press the MENU button.

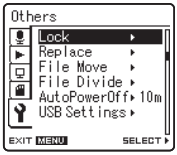
- The menu will appear on the display (☞ P.41).

3 Press the ▲ or ▼ button to select [Others] tab.



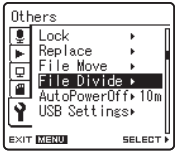
- You can change the menu display by moving the settings tab cursor.

4 Press the ▶/OK or ▶▶I button to move the cursor to the item to set.

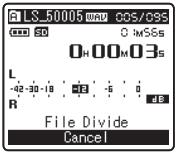


[**Others**] will appear on the display

5 Press the ▲ or ▼ button to select [File Divide].

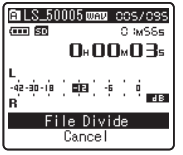


6 **Press the ►/OK or ►►I button.**

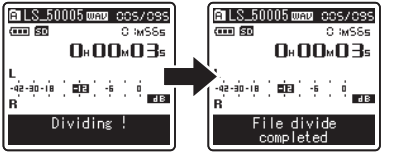


[**File Divide**] will appear on the display.

7 **Press the ▲ or ▼ button to select [File Divide].**



8 **Press the ►/OK or ►►I button.**



- [**Dividing!**] will be displayed and file splitting will start. Splitting is completed when [**File divide completed**] is displayed.

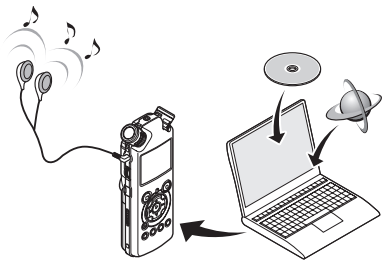
9 **Press the MENU button to close the menu screen.**

Notes

- The file split cannot be done when the file list is displayed.
- The recorder cannot split files when the number of files in the folder exceeds 199.
- Locked files (☞ P.41, P.47) cannot be split.
- After a file has been split, the original file will be renamed [**File name_1.WAV**] and the new file will be named [**File name_2.WAV**].
- After a file has been split, the resulting files retain the same creation date and modification date as the original file.
- If a file has an extremely short recording time, it may not be split even if it is a PCM file.
- Do not remove the batteries during splitting file. This may damage the data.

By being connected to a PC, the recorder enables you to do the following:

- You can transfer files recorded with this recorder to a computer, play them back, and manage them by using Windows Media Player or iTunes (☞ P.65, P.73).
- In addition to its uses as an IC recorder and a music player, this recorder can also be used as external memory for a computer by storing data from a computer and reading it back out (☞ P.64, P.77).



Operating Environment

Windows

Operating System:
Microsoft Windows XP/Vista/7 (Standard Installation)

Compatible PC's:
Windows PC's equipped with more than one free USB port

Macintosh

Operating System:
Mac OS X 10.4.11 ~ 10.6 (Standard Installation)

Compatible PC's:
Apple Macintosh series equipped with more than one free USB port

Notes

- This is an operational environment for saving the files recorded by this recorder to your PC with USB connection.
- To check the operational environment of [**Olympus Sonority**] software, see a supplied separate sheet.
- Even if operational environment is satisfied, we do not support such as 64-bits OS, the multi-boot environment and self-modified PC's.
- Even if operational environment is satisfied, we do not support such as upgraded OS, the multi-boot environment and self-modified PC's.

Precautions on using the recorder connected to a PC

- When you are downloading a file from the recorder or uploading a file to the recorder, do not remove the USB cable even if the screen is indicating you can. Data is still being transferred while the [**PEAK**] indicator light is blinking. When removing the USB cable, be sure to follow the description in ☞ P.63. If the USB cable is removed before the drive is stopped, data may not be successfully transferred.
- On a PC, do not format the drive of the recorder. Initialization is not successfully achieved on a PC. For initialization, follow the instructions in the [**Format**] screen of the recorder (☞ P.51).
- Folder (directory) names appeared by file management tools such as Explorer attached to Microsoft Windows is different from the folder names that can be set with the recorder.
- If folders or files stored on the recorder are moved or renamed by using a file management tool such as Explorer, the order of files may be changed or files may become unrecognizable
- Data can be written or uploaded to the recorder even though the attribute of the recorder drive is shown as Read-only by the operating system of the PC.
- As the noise may cause adverse effects on electronics devices nearby the recorder, unplug the earphone when you connect the recorder to a PC.

Copyright and Copyright Protection Feature (DRM)

By the Copyright Act, any voice/music files and music CDs downloaded from the Internet without the copyright holder's permission may not be reproduced, distributed, publicized/re-publicized on the Internet, or converted into WMA or MP3 files for the purpose of commercial business or sale.

A WMA file may be provided with DRM (Digital Right Management) for copyright protection. DRM limits the file to copy or distribute music files that are converted (ripped) from a music CD or downloaded from music distribution services. To transfer a WMA file with DRM to the recorder, you need to use appropriate methods such as Windows Media Player. Copying the music files with DRM purchased from online music distribution service to a portable device such as this recorder may be restricted.

Note

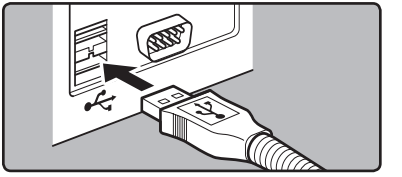
- This recorder is compatible with Microsoft Corporation DRM9, but not with DRM10.

Connecting to Your PC

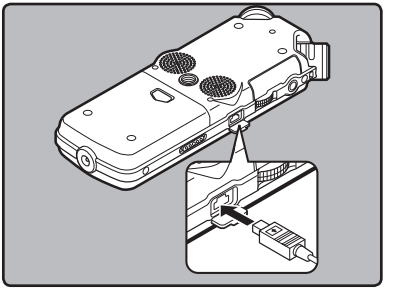
Connecting to Your PC

1 **Boot the PC.**

2 **Connect the USB connecting cable to the USB port of the PC.**

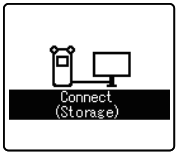


3 **Confirm that the recorder has stopped and connect a USB connection cable to the connection port on the side of recorder.**



Windows:
When you open [**My Computer**], it will be recognized by the drive name [**LS_5**] (Built-in flash memory) and [**Removable Disk**] (SD card).

Macintosh:
When you connect the recorder to a Mac OS, it will be recognized by the drive name [**LS_5**] on the desktop. When an SD card is inserted it will be recognized by the drive name [**Untitled**].



[**Connect (Storage)**] is appeared on recorder if the USB cable is connected

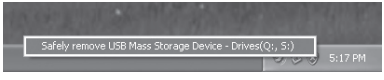
Note

- Be sure to use the attached dedicated cable for the USB connection cable. If any other company's cable is used, it cause problems. Also, please do not connect this dedicated cable to any other company's product.

Disconnecting from Your PC

Windows

1 **Click [ ] on the task bar located at the lower-right corner of the screen. Click [Safely remove USB Mass Storage Device].**



- The drive letter will differ depending on the PC being used.

2 **When the safe to remove hardware window appears, click [OK].**

3 **Disconnect the USB connection cable.**

Macintosh

1 **Move the drive icon for this recorder that is appear on the desktop to the garbage bin by Drag & Drop it.**

- When you connect the recorder to a Mac OS, it will be recognized by the drive name [**LS_5**] on the desktop. When an SD card is inserted it will be recognized by the drive name [**Untitled**].

2 **Disconnect the USB cable.**

Notes

- NEVER disconnect the USB while the [**PEAK**] indicator light is flashing. If you do, the data will be destroyed.
- When the recorder is connected to a PC, the power will be supplied from the USB cable.
- Refer to the user's manual for your PC regarding the USB port on your PC.
- Be sure that you connect the USB cable either directly to the USB port on your PC.
- Be sure to push the cable connector all the way in. Otherwise, the recorder may not operate properly.
- When connecting the recorder through an USB hub the operation may become unstable. In such cases, refrain from using a USB hub.

Transfer the Voice Files to Your PC

The 5 voice folders of this recorder are appeared as [**DSS_FLDA**], [**DSS_FLDB**], [**DSS_FLDC**], [**DSS_FLDD**] and [**DSS_FLDE**], and the recorded voice files are saved in these folders.

Windows

1 **Connecting the recorder to your PC (☞ P.62).**

2 **Open the Explorer window.**

3 **Open the [LS_5] folder.**
- When you open [**My Computer**], it will be recognized by the drive name [**LS_5**] (Built-in flash memory) and [**Removable Disk**] (SD card) (The drive letter will differ depending on the PC being used).

4 **Copy the data.**

5 **Disconnecting the recorder to your PC (☞ P.63).**

Macintosh

1 **Connecting the recorder to your PC (☞ P.62).**
- When you connect the recorder to a Mac OS, it will be recognized by the drive name [**LS_5**] on the desktop. When an SD card is inserted it will be recognized by the drive name [**Untitled**].

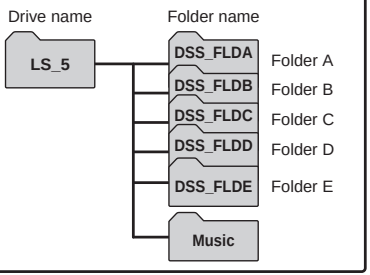
2 **Double-click on [LS_5] icon on the desktop.**

3 **Copy the data.**

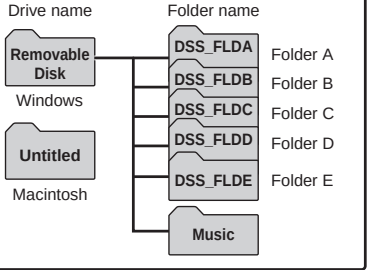
4 **Disconnecting the recorder to your PC (☞ P.63).**

■ Drive name and folder name when a personal computer is connected:

Built-in flash memory



SD card



Notes

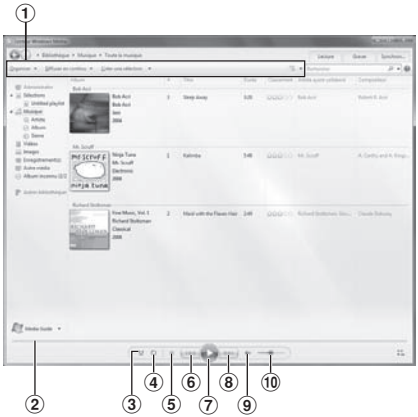
- While transmitting data, [**Busy**] is appeared, and the [**PEAK**] indicator light flashes. NEVER disconnect the USB while the [**PEAK**] indicator light is flashing. If you do, the data will be destroyed.
- In the Windows operational environment 24 bit WAV format files cannot be played back.
- When a sound board of your PC does not support to 24 bit, the recorder cannot play the software supporting to 24 bit correctly.
- In the Mac OS operational environment, WMA format files cannot be played back.

Using Windows Media Player

By using Windows Media Player, music files from music CDs or language study CDs can be imported to your PC (☞P.66) and music files that you have bought from any music distribution sites can be easily transferred to the recorder to play (☞P.68).The files recorded on the recorder can be transferred to your PC and can be copied to CD (☞P.71). It supports WAV, MP3, and WMA format music files.

Window Names

Windows Media Player 12



① Features taskbar
② Seek slider
③ Shuffle button
④ Repeat button
⑤ Stop button
⑥ Previous button
⑦ Play button
⑧ Next button
⑨ Mute button
⑩ Volume slider

Windows Media Player 11

① Features taskbar
② Seek slider
③ Shuffle button
④ Repeat button
⑤ Stop button
⑥ Previous button
⑦ Play button
⑧ Next button
⑨ Mute button
⑩ Volume slider

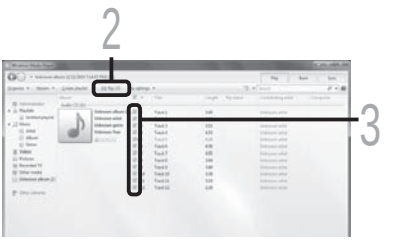
Copying Music from CD

Windows Media Player 12

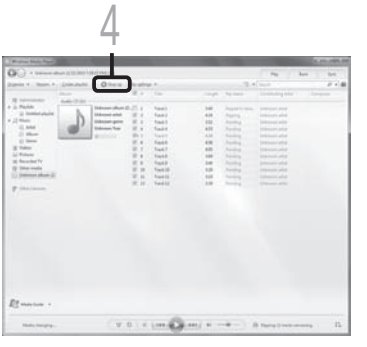
1 **Insert CD into the CD-ROM drive, and start Windows Media Player.**

2 **From the Features taskbar, click [Rip CD] menu.**
- If Internet connectivity is available, CD information is searched.

3 **Put a check mark on the music file that you want to copy.**



4 **Click [Start Rip].**
- Files copied to a PC are stored in WMA format. Music files copied are categorized by artist, album, genre, etc. and added to the play list.



Windows Media Player 11

1 **Insert CD into the CD-ROM drive, and start Windows Media Player.**

2 **From the Features taskbar, click [Rip] menu.**
- After clicking [**Rip**] menu, click [**View Album Info**] for Windows Media Player 10 as necessary.
- If Internet connectivity is available, CD information is searched.

3 **Put a check mark on the music file that you want to copy.**

4 **Click [Start Rip].**
- For Windows Media Player 10 Click [**Rip Music**].
- Files copied to a PC are stored in WMA format. Music files copied are categorized by artist, album, genre, etc. and added to the play list.

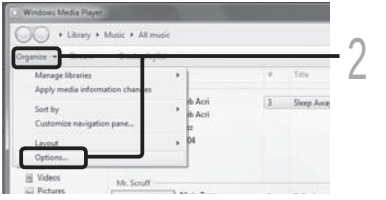
Transferring Music File to the Recorder

You can transfer the music files saved in your PC to this recorder. For how to copy the music files from the CD to your PC, see "**Copying Music from CD**" (☞ P.66).

Windows Media Player 12

1 **Connect the recorder to a PC, and start Windows Media Player.**

2 **From the [Organize] menu, click [Options]. At the Options dialog box, click the [Devices] tab.**

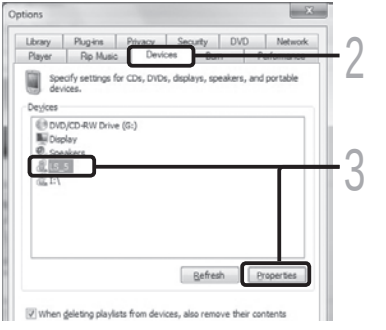


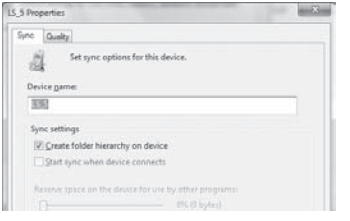
3 **From the Devices list, select [LS_5]. Next, click [Properties].**

- Click on the [**Create folder hierarchy on device**] to check. ***1** ***2**
- The folder with artist name or album name is automatically created. This will make you find the file you want to listen to more easily.

***1** If [**Create folder hierarchy on device**] is checked by default, click to uncheck the box once, and click it again to check.

***2** After the synchronous transfer to the recorder, a file named "WMPInfo.xml" is created. If you delete this file, the ***1** may need to be set again.





4 **Select the desired category from [Library] on the left, and select music files or albums to transfer to the recorder, and Drag & Drop them in [Sync List] on the right.**

5 **Click [Start Sync].**
- The file is transferred to the recorder.

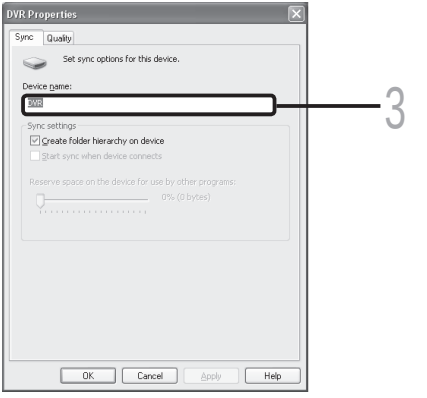
Windows Media Player 11

1 **Connect the recorder to a PC, and start Windows Media Player.**

2 **From the Features taskbar, click [Sync].**

3 **Click [Sync] menu again to select [DVR] ➔ [Advanced Options] ➔ [Set Up Sync], and set as follows.**
- Click on the [**Create folder hierarchy on device**] to check. ***1** ***2**
- The folder with artist name or album name is automatically created. This will make you find the file you want to listen to more easily.

***1** If [**Create folder hierarchy on device**] is checked by default, click to uncheck the box once, and click it again to check.
***2** After the synchronous transfer to the recorder, a file named “WMPInfo.xml” is created. If you delete this file, the ***1** may need to be set again.



4 **Select the desired category from [Library] on the left, and select music files or albums to transfer to the recorder, and Drag & Drop them in [Sync List] on the right.**

5 **Click [Start Sync].**
- The file is transferred to the recorder.

Notes

- Refer to the online help of Windows Media Player for details.
- Copying the music files with DRM purchased online music distribution service to a portable device such as this recorder may be restricted.
- To transfer the files by using Windows Media Player 9 or 10, check the Olympus website.
- If the music files are transferred to the recorder until it reaches to the maximum memory, the message [**Cannot make the system file. Connect to PC and delete unnecessary file**] may appear on this recorder’s display. In such a case, erase the files to make free space (hundreds of KB to dozens of MB depending on the music file sizes) for the management file (The more capacity for the management file will be necessary as the number of the music files increases).

Copying Voice File to the CD

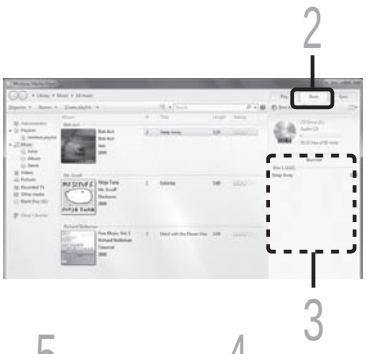
You can transfer the voice files in the recorder to your PC and copy them to CD. For how to copy the voice files from the recorder to your PC, see "**Transfer the Voice Files to Your PC**" (☞ P.64).

Windows Media Player 12

1 **Insert the blank CD-R/RW into the CD-R/RW drive, and start Windows Media Player.**

2 **From the Features taskbar, click the [Burn] menu.**

3 **Select the desired category from [Library] on the left, and select voice files or albums to copy to the CD-R/RW, and Drag & Drop them in [Burn List] on the right.**



4 **Click [Burn] tab, and select [Data CD or DVD] or [Audio CD].**

When [Audio CD] is selected:
- A file is converted and copied in CD in order to play it by the audio equipment which can play CD-R/RW.

When [Data CD or DVD] is selected:
- Copying files with the format to be recorded.

5 **Click [Start Burn].**

Windows Media Player 11

1 **Insert the blank CD-R/RW into the CD-R/RW drive, and start Windows Media Player.**

2 **From the Features taskbar, click the [Burn] menu.**

3 **Select the desired category from [Library] on the left, and select voice files or albums to copy to the CD-R/RW, and Drag & Drop them in [Burn List] on the right.**

4 **Click [Burn] menu again, and select [Audio CD] or [Data CD].**

When [Audio CD] is selected:
- A file is converted and copied in CD in order to play it by the audio equipment which can play CD-R/RW.

When [Data CD] is selected:
- Copying files with the format to be recorded.

5 **Click [Start Burn].**

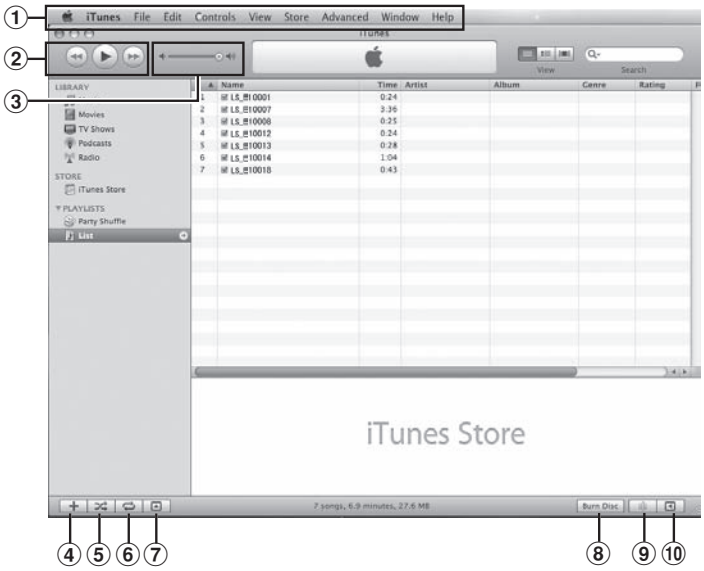
Note

- Refer to the online help of Windows Media Player for details.

Using iTunes

By using iTunes, music files from music CDs or language study CDs can be imported to your PC (☞P.74) and music files that you have bought from any music distribution sites can be easily transferred to the recorder to play (☞P.75).The files recorded on the recorder can be transferred to your PC and can be copied to CD (☞P.76).

Window Names



① Features taskbar
② Rewind button/ Playback, Pause button/ Fast Forward button
③ Volume slide
④ Playlist addition button
⑤ Shuffle button
⑥ Repeat button
⑦ Display change button
⑧ Disc create button
⑨ Genius button
⑩ Genius side button

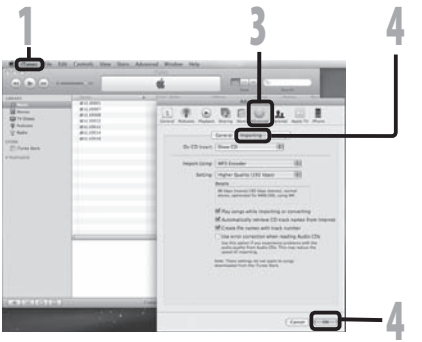
Copying Music from CD

1 **Insert the CD into the CD-ROM drive, and start iTunes.**

2 **Click [iTunes] ➔ [Preferences].**

3 **Click [Advanced] tag.**

4 **Click [Importing] to set the file format and bit rate for copying music files to your PC, and click [OK].**



- This recorder is compatible with music files in the MP3 and WAV formats (☞ P.33).

[Import Using]:
Set the file format for copying music file from a CD. Please select [**MP3**] or [**WAV**].

[Setting]:
Set the bit rate for copying music file from a CD. You can select a bit rate between [**128**], [**160**] and [**192**].

5 **Put a check mark on the music files that you want to copy.**

6 **Click [Import CD].**

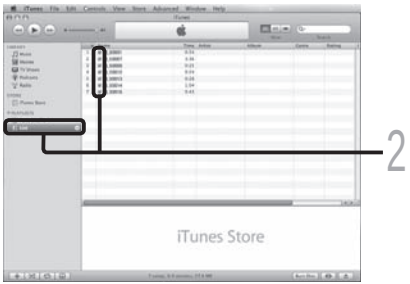
Transferring Music File to the Recorder

You can transfer the music files saved in your PC to this recorder. For how to copy the music files from the CD to your PC, see "**Copying Music from CD**" (☞ P.74).

1 Connect the recorder to a PC, and start iTunes.

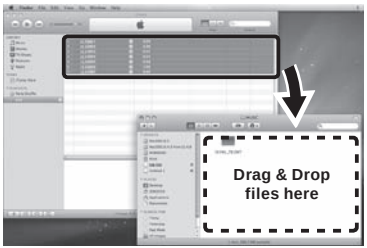
2 Select the play list to be transferred to the recorder, and put the check marks on the music files that you want to transfer.

- The order of music pieces can be changed by Drag & Drop of the music file in the play list displayed.



3 Double-click the corresponding drive with the recorder, and open [Music] folder.

- When you connect the recorder to a Mac OS, it will be recognized by the drive name [**LS_5**] on the desktop. When an SD card is inserted it will be recognized by the drive name [**Untitled**].
- Copy to [**Music**] folder of the recorder when transferring the music file.
- You can create up to 2 hierarchies in the [**Music**] folder. And up to 128 folders can be made including [**Music**] folder.
- Up to 200 files can be stored in each folder.



4 Select the desired files, and Drag & Drop them to [Music] folder.

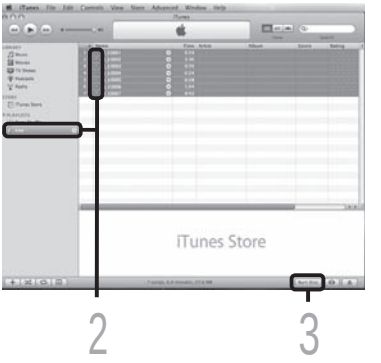
Copying Voice File to the CD

You can transfer the voice files in the recorder to your PC and copy them to CD. For how to copy the voice files from the recorder to your PC, see "**Transfer the Voice Files to Your PC**" (☞ P.64).

1 **Insert the CD-R/RW into the CD-R/RW drive, and start iTunes.**

2 **Select the desired playlist, and put a check mark on the voice files to copy to the CD-R/RW.**

3 **Click [Burn Disc].**



4 **To set the CD format for copying voice files to CD-R/RW, and click [OK].**

When [Audio CD] is selected:
- A file is converted and copied in music CD in order to play it by the audio equipment which can play CD-R/RW.

When [MP3 CD] is selected:
- Copying in MP3 format.

When [Data CD] is selected:
- Copying files with the format to be recorded.

Using as External Memory of the PC

In addition to its uses as an IC recorder and a music player, this recorder can also be used as external memory for a computer by storing data from a computer and reading it back out.

With the recorder connected to your PC, you can download data from the memory to your PC and upload data stored on your PC to the memory.

Windows

1 **Connecting the recorder to your PC (☞ P.62).**

2 **Open the Explorer window.**

3 **Open the [LS_5] folder.**
- When you open [**My Computer**], it will be recognized by the drive name [**LS_5**] (Built-in flash memory) and [**Removable Disk**] (SD card) (The drive letter will differ depending on the PC being used).

4 **Copy the data.**

5 **Disconnect the USB connection cable (☞ P.63).**

Macintosh

1 **Connecting the recorder to your PC (☞ P.62).**
- When you connect the recorder to a Mac OS, it will be recognized by the drive name [**LS_5**] on the desktop. When an SD card is inserted it will be recognized by the drive name [**Untitled**].

2 **Double-click on [LS_5] icon on the desktop.**

3 **Copy the data.**

4 **Disconnect the USB connection cable (☞ P.63).**

Note

- While transmitting data, [**Busy**] is displayed, and the [**PEAK**] indicator light flashes. NEVER disconnect the USB while the [**PEAK**] indicator light is flashing. If you do, the data will be destroyed.

Alarm Message List

Message	Meaning	Explanation	Action
Battery Low	Low battery power.	Battery power is getting low.	Replace with new batteries (☞ P.11).
File Protected	Erase-locked.	Tried to delete a locked file.	Unlock the file (☞ P.41, P.47).
Can't record in this folder	Not an audio-recording folder.	Recording has been attempted with a [**Music**] folder.	Select a folder from [A] through to [E] and try recording again (☞ P.19 to P.21, P.23).
Folder Full	Folder full.	The folder is full of files (maximum of 200 files).	Erase unnecessary files (☞ P.38).
Memory Error	Error in the memory.	Error in the memory.	This is a malfunction, so go to the store where you purchased the recorder or an Olympus service station for repair (☞ P.81).
		SD card is not recognized correctly.	Remove the SD card then put it again (☞ P.17 to P.18).
Licence Mismatch	Illegally copied file.	The music files copied illegally.	Erase the file (☞ P.38).
Memory Full	Zero remaining memory.	No remaining memory.	Erase unnecessary files (☞ P.38).
No File	No file.	No files were found in the folder.	Select another folder (☞ P.19 to P.21).
SD Card Locked	Card Locked.	The SD Card is set to write protection.	Undo the SD Card's write protection setting and then try again (☞ P.18).
Format Error	Formatting error.	There was an error while formatting the recorder's memory.	Reformat the memory (☞ P.51).
Can't make the system file. Connect to PC and delete unnecessary file	The management file cannot be created.	The file for management cannot be created due to a shortage of capacity for remaining memory.	Connect the recorder to a computer and delete any unnecessary files.
Data Write Error	The data is not written correctly in the memory.	Data writing to memory cannot be done in time and the recorded sound skips.	Format the memory (☞ P.51).

Troubleshooting

Symptom	Probable cause	Action
Nothing appears on the display	The batteries are not loaded properly.	Verify that the batteries' polarities ⊕ and ⊖ are correct (☞ P.11).
	Battery power is getting low.	Replace with new batteries (☞ P.11).
	The power is off.	Turn the power on (☞ P.13).
Won't start	Battery power is getting low.	Replace with new batteries (☞ P.11).
	The power is off.	Turn the power on (☞ P.13).
	The recorder is in HOLD mode.	Release the recorder from HOLD (☞ P.13).
Unable to record	Low remaining memory.	Erase unnecessary files (☞ P.38).
	The maximum number of files has been reached.	Change to the another folder (☞ P.19 to P.21, P.23).
	The SD Card is set to write protection.	Undo the SD Card's write protection setting and then try again (☞ P.18).
No sound picked up by the built-in microphone	An external microphone or external device is connected.	Detach all external microphones and external devices connected to the **LINE IN** jack and the **MIC** jack (☞ P.30, P.31).
Unable to record through an external microphone	An external device is connected to the **LINE IN** jack.	Detach the connecting cord from the recorder.
	An external microphone supported by plug-in power is connected but [**Plug-inPower**] is set to [**Off**].	Set [**Plug-inPower**] to [**On**] when an external microphone supported by plug-in power is connected (☞ P.41, P.44).
No playback tone heard	The earphone is connected.	Unplug the earphones to use the internal speaker.
	The volume level is set to [**0**].	Adjust the volume level (☞ P.32).
Recording level too low	The recording level has not been adjusted.	Adjust the recording level and then try recording once more (☞ P.26).
	The microphone sensitivity is too low.	Set the microphone sensitivity to [**HIGH**] mode and try again (☞ P.27).
	This could potentially be because the recording level and output level for the connected external devices are too low.	If you cannot record clearly even after adjusting the recording level, then adjust the output level for the connected devices (☞ P.23).
Recording level too high	The recording level has not been adjusted.	Adjust the recording level and then try recording once more (☞ P.23).
	This could potentially be because the recording level and output level for connected external devices are too high.	If you cannot record clearly even after adjusting the recording level, then adjust the output level for the connected devices (☞ P.23).

Symptom	Probable cause	Action
Voice files are not recorded in stereo	The connected external microphone is monaural.	When recording while an external monaural microphone is connected, sound will only be recorded by the L-channel.
Cannot find the recorded Voice File	Wrong recording media or folder.	Switch to the correct recording media or folder (☞ P.19 to P.20, P.23, P.41, P.46).
Noise heard during playback	The recorder was shaken during recording.	———
	The recorder was placed near a cell phone or fluorescent lamp while recording or during playback.	Move the recorder.
	The settings of the connected external microphone do not correspond to those of the recorder.	When a microphone not supported by the plug-in power function is connected, turn the [**Plug-inPower**] setting to [**Off**] (☞ P.41, P.44).
Unable to erase	The file is locked.	Unlock the file (☞ P.41, P.47).
	The file is read-only.	Cancel the read-only setting of the file on the PC.
Unable to hear any sound from the earphone through the recording monitor	The [**Rec Monitor**] is set to [**Off**].	Turn the [**Rec Monitor**] setting to [**On**] (☞ P.41, P.44).
Noise is audible through the recording monitor	Acoustic feedback is occurring.	When the built-in speaker amps and the like are connected there is a risk that audio feedback will occur while recording. It is recommended that you use earphones for the recording monitor, or turn the [**Rec Monitor**] to [**Off**] while recording (☞ P.41, P.44).
		Conduct adjustments like separating the earphones from the microphone farther, do not point the microphone at the earphones, lower the volume on the recording monitor, and so on.

Technical Assistance and Support

The following are contact information for technical support for Olympus recorders and software only.

- Technical Hotline Number in the U.S. and Canada
  1-888-553-4448
- User Support E-mail address in the U.S. and Canada
  distec@olympus.com
- Technical Hotline Number in Europe
  Toll free number: 00800 67 10 83 00
  available for Austria, Belgium, Denmark, Finland, France, Germany, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom
  Charged numbers for the Rest of Europe
  + 49 180 567 1083
  + 49 40 23773 4899
- User Support E-mail address in Europe
  dss.support@olympus-europa.com

Accessories (optional)

Accessories exclusive to the Olympus IC recorder can be purchased directly from Online Shop on our company's website. Sales of accessories are different according to the country.

Stereo microphone: ME51S
The ME51S stereo microphone comes in a set with an extension cord and a clip.The built-in large-diameter microphone enables sensitive stereo recording.

2 channel microphone (omni-directional): ME30W
Two ME30 monaural microphones come in a set with a miniature tripod and a connection adapter. These are highly sensitive omni-directional microphones supported by plug-in power which are well-suited to recording musical performances.

Compact Gun Microphone (unidirectional): ME31
The directional microphones is useful for recordings such as outdoor recording of wild birds singing. The metal-cut body provides a sturdiness to the high rigidity.

Highly sensitive noise-cancellation monaural microphone (unidirectional): ME52W
This microphone is used to record sound at a distance while minimizing surrounding noise.

Tie clip microphone (omni-directional): ME15
Small concealing microphone with a tie-clip.

Telephone pickup: TP7
Earphone type microphone can be plugged into your ear while phoning. The voice or conversation over the phone can be clearly recorded.

Ni-MH rechargeable battery and charger set: B-90SU (For U.S.A. and Canada) BU-90SE (For Europe)
B-90SU or BU-90SE comes with an Ni-MH rechargeable battery charger and 4 Ni-MH rechargeable batteries B-01 4PE as a pack. This charger can quick charge Olympus AA or AAA Ni-MH rechargeable batteries.

Ni-MH rechargeable battery: B-01 4PE (Europe only)
4 Ni-MH rechargeable batteries B-01 4PE as a pack. High-efficiency rechargeable long life batteries.

Connecting cord: KA333
Connecting cord which has stereo mini-plugs (ø3.5) with resistance at both ends. Use to connect from the earphone jack output of the recorder to the microphone input jack when recording. Converting plug adapters (PA331/PA231) which convert to the monaural mini plug (ø3.5) or monaural mini plug (ø2.5) are also enclosed.

Exclusive remote control set: RS30W
When the receiver is plugged into the **REMOTE** jack the recorder's recording and stop functions can be operated through the remote control. The receiving position can be adjusted, thereby allowing you to operate the recorder from various different angles.

AC adapter: A515

Specifications

General points

■ **Recording format:**
Linear PCM (Pulse Code Modulation)
MP3 (MPEG-1/MPEG-2 Audio Layer3)
WMA (Windows Media Audio)

■ **Input level:**
MIC SENSE HIGH/LOW switch is set to [**HIGH**]:
– 59 dBv
MIC SENSE HIGH/LOW switch is set to [**LOW**]:
– 39 dBv
LINE IN jack input:
– 6 dBv

■ **Maximum headphone output:**
6.7 mW + 6.7 mW (at load of 16 Ω)
≦150 mV (According to EN 50332-2)

■ **Recording medium:**
Built-in NAND FLASH memory (2 GB)
SD card (512 MB to 32 GB)

■ **Speaker:**
Built-in ø 16 mm round dynamic speaker

■ **MIC jack:**
ø 3.5 mm mini-jack, impedance 2 kΩ

■ **LINE IN jack:**
ø 3.5 mm mini-jack, impedance 78 kΩ (approx.)

■ **EAR jack:**
ø 3.5 mm mini-jack, impedance 8 Ω or more

■ **Maximum working output:**
200 mW + 200 mW (8 Ω speaker)

■ **Input power requirement:**
Batteries: Two AA batteries (LR6) or Two Ni-MH rechargeable batteries
External power supply: AC adapter 5 V

■ **External dimensions:**
131.5 mm × 48 mm × 22.4 mm (without protrusions)

■ **Weight:**
165 g (including alkaline batteries)

Overall frequency response:

■ **LINE IN Jack (During recording or playback mode):**

Linear PCM format

Recording mode	Overall frequency response
96 kHz	20 Hz to 44 kHz
88.2 kHz	20 Hz to 42 kHz
48 kHz	20 Hz to 23 kHz
44.1 kHz	20 Hz to 21 kHz
44.1 kHz/mono	20 Hz to 21 kHz

MP3 format

Recording mode	Overall frequency response
320 kbps	50 Hz to 20 kHz
256 kbps	50 Hz to 20 kHz
128 kbps	50 Hz to 17 kHz
mono	50 Hz to 13 kHz

WMA format

Recording mode	Overall frequency response
160 kbps	50 Hz to 19 kHz
128 kbps	50 Hz to 19 kHz
64 kbps	50 Hz to 15 kHz
mono	50 Hz to 13 kHz

■ **Built-in stereo microphone (During recording mode):**
60 Hz to 20 kHz

- However, when recording by the MP3 format or the WMA format, the upper limit value of the frequency response depends on each recording mode (see above diagram).

Guide to recording times

■ Linear PCM format

Recording mode	Built-in flash memory (2 GB)	SD card						
		512 MB	1 GB	2 GB	4 GB	8 GB	16 GB	32 GB
96 kHz 24 bit	55 min.	10 min.	25 min.	55 min.	1 h. 50 min.	3 h. 45 min.	7 h. 30 min.	15 h. 25 min.
96 kHz 16 bit	1 h. 25 min.	20 min.	40 min.	1 h. 20 min.	2 h. 50 min.	5 h. 45 min.	11 h. 30 min.	23 h. 10 min.
88.2 kHz 24 bit	1 h.	15 min.	30 min.	1 h.	2 h.	4 h. 10 min.	8 h. 15 min.	16 h. 45 min.
88.2 kHz 16 bit	1 h. 35 min.	20 min.	45 min.	1 h. 30 min.	3 h. 5 min.	6 h. 15 min.	12 h. 30 min.	25 h. 15 min.
48 kHz 24 bit	1 h. 55 min.	25 min.	55 min.	1 h. 50 min.	3 h. 50 min.	7 h. 40 min.	15 h.	31 h.
48 kHz 16 bit	2 h. 55 min.	40 min.	1 h. 25 min.	2 h. 50 min.	5 h. 45 min.	11 h. 30 min.	23 h.	46 h. 30 min.
44.1 kHz 24 bit	2 h. 5 min.	30 min.	1 h.	2 h.	4 h. 10 min.	8 h. 20 min.	16 h. 30 min.	33 h. 45 min.
44.1 kHz 16 bit	3 h. 10 min.	45 min.	1 h. 30 min.	3 h. 5 min.	6 h. 15 min.	12 h. 35 min.	25 h.	50 h. 40 min.
44.1 kHz mono	6 h. 20 min.	1 h. 25 min.	3 h.	4 h. 50 min.	12 h. 10 min.	24h. 55 min.	50h. 50 min.	101 h.

■ MP3 format:

Recording mode	Built-in flash memory (2 GB)	SD card						
		512 MB	1 GB	2 GB	4 GB	8 GB	16 GB	32 GB
320 kbps	14 h. 10 min.	3 h. 30 min.	7 h.	13 h. 50 min.	28 h.	55 h. 40 min.	110 h.	224 h.
256 kbps	17 h. 45 min.	4 h. 20 min.	8 h. 50 min.	17 h. 20 min.	35 h.	69 h. 40 min.	137 h.	280 h.
128 kbps	35 h. 35 min.	8 h. 50 min.	17 h. 40 min.	34 h. 50 min.	70 h. 10 min.	139 h.	275 h.	560 h.
mono	71 h. 10 min.	17 h.	34 h. 10 min.	54 h. 50 min.	136 h.	276 h.	562 h.	1120 h.

■ WMA format:

Recording mode	Built-in flash memory (2 GB)	SD card						
		512 MB	1 GB	2 GB	4 GB	8 GB	16 GB	32 GB
160 kbps	27 h. 50 min.	6 h. 50 min.	13 h. 50 min.	27 h. 10 min.	54 h. 50 min.	109 h.	215 h.	438 h.
128 kbps	34 h. 45 min.	8 h. 30 min.	17 h. 20 min.	34 h.	68 h. 40 min.	136 h.	269 h.	547 h.
64 kbps	69 h. 35 min.	17 h. 20 min.	34 h. 50 min.	68 h. 10 min.	137 h.	272 h.	538 h.	1095 h.
mono	139 h. 10 min.	33 h. 20 min.	66 h. 55 min.	107 h.	266 h.	539 h.	1098 h.	2189 h.

Notes

- The above values are strictly rough guides.
- Variations in the available recording time will arise as there may be differences in the available memory depending on the card.
- Caution is required, since the differences in the available recording time will increase when the bit count and bit rate are low.
- Available recording time may be shorter if many short recordings are made (The displayed available recording time and recorded time are approximate indications).
- The maximum capacity for a single file is limited to approx. 4 GB for WMA and MP3, and approx. 2 GB for Linear PCM format (WAV).
- For WMA format files, the file length for a single file is limited to a maximum length of approx. 26 hours and 40 minutes. For this reason, it will differ from the continuous recording time for a single file.

Guide to battery life

■ **Alkaline batteries:**

Recording mode		Built-in stereo microphone (During recording mode)	Built-in stereo speakers (During playback mode)
Linear PCM format	96 kHz 24 bit	13 h. 30 min.	29 h.
	44.1 kH 16 bit	23 h.	52 h.

■ **Ni-MH Rechargeable batteries**

Recording mode		Built-in stereo microphone (During recording mode)	Built-in stereo speakers (During playback mode)
Linear PCM format	96 kHz 24 bit	13 h.	24 h.
	44.1 kHz 16 bit	22 h. 30 min.	42 h.

Notes

- The above values are strictly rough guides.
- Battery life is measured by Olympus. It varies greatly according to the type of batteries used and the conditions of use.

Specifications and design are subject to change without notice.

MEMO

Declaration of Conformity

Model Number	: LS-5
Trade Name	: DIGITAL VOICE RECORDER
Responsible Party	: OLYMPUS IMAGING AMERICA INC.
Address	: 3500 Corporate Parkway, P.O. Box 610, Center Valley, PA 18034-0610, U.S.A.
Telephone Number	:1-888-553-4448

This device Complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Tested To Comply With FCC Standards FOR HOME OR OFFICE USE

Canadian RFI

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.
Cet appareil numérique ne dépasse pas les limites de la Catégorie B pour les émissions de bruit radio émanant d'appareils numériques, tel que prévu dans les Règlements sur l'Interférence Radio du Département Canadien des Communications.

For customers in Europe

"CE" mark indicates that this product complies with the European requirements for safety, health,environment and customer protection.

This symbol [crossed-out wheeled bin WEEE Annex IV] indicates separate collection of waste electrical and electronic equipment in the EU countries. Please do not throw the equipment into the domestic refuse. Please use the return and collection systems available in your country for the disposal of this product.
Applicable Product : LS-5

L'indication "CE" signifie que ce produit est conforme aux exigences concernant la sécurité, la santé, l'environnement et la protection du consommateur.

Le symbole [poubelle sur roue barrée d'une croix WEEE annexe IV] indique une collecte séparée des déchets d'équipements électriques et électroniques dans les pays de L'UE. Veuillez ne pas jeter l'équipement dans les ordures domestiques. A utiliser pour la mise en rebut de ces types d'équipements conformément aux systèmes de traitement et de collecte disponibles dans votre pays.
Produit applicable: LS-5

La marca "CE" indica que este producto cumple con los requisitos europeos en materia de seguridad, salud, medio ambiente y protección al consumidor.

Este símbolo [un contenedor de basura tachado con una X en el Anexo IV de WEEE] indica que la recogida de basura de equipos eléctricos y electrónicos deberá tratarse por separado en los países de la Unión Europea. No tire este equipo a la basura doméstica. Para el desecho de este tipo de equipos utilice los sistemas de devolución al vendedor y de recogida que se encuentren disponibles.
Producto aplicable: LS-5

Das „CE" Zeichen bestatigt die Ubereinstimmung mit den Europaischen Bestimmungen fur Betriebssicherheit und Umweltschutz.

Dieses Symbol [durchgestrichene Mülltonne nach WEEE Anhang IV] weist auf die getrennte Rücknahme elektrischer und elektronischer Geräte in EU-Ländern hin. Bitte werfen Sie das Gerät nicht in den Hausmüll. Informieren Sie sich über das in Ihrem Land gültige Rücknahmesystem und nutzen dieses zur Entsorgung.
Anwendbare Produkte : LS-5

Знак "CE" обозначает, что этот продукт соответствует европейским требованиям по безопасности, охране здоровья, экологической безопасности и безопасности пользователя.

Этот символ [перечеркнутая мусорная урна WEEE на колесах, приложение IV] обозначает раздельный сбор электрических и электронных отходов в России. Пожалуйста, не выбрасывайте изделия в бытовой мусоропровод. Используйте системы возврата и сбора (если таковые имеются) для утилизации отходов вышеуказанных типов.
Применимое изделие: LS-5

Il marchio "CE" indica che questo prodotto è conforme alle norme della comunità europea per quanto riguarda la sicurezza, la salute, l'ambiente e la protezione del consumatore.

Questo simbolo [contenitore di spazzatura barrato come illustrato nell'allegato IV della direttiva WEEE] indica una raccolta separata dei rifiuti di apparecchiature elettriche ed elettroniche nei paesi dell'Unione Europea. Si prega di non gettare questo dispositivo tra i rifiuti domestici. Si prega di utilizzare i sistemi di raccolta e di recupero disponibili per lo smaltimento di questo tipo di dispositivi.
Prodotto applicabile : LS-5

OLYMPUS®

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